



Calhoun: The NPS Institutional Archive
DSpace Repository

Theses and Dissertations

1. Thesis and Dissertation Collection, all items

1998-12-01

Health promotion programs within the Navy Environmental Health Center : evolution and impact

Seymour, Mary S.

Monterey, California. Naval Postgraduate School

<http://hdl.handle.net/10945/8461>

Downloaded from NPS Archive: Calhoun



Calhoun is the Naval Postgraduate School's public access digital repository for research materials and institutional publications created by the NPS community. Calhoun is named for Professor of Mathematics Guy K. Calhoun, NPS's first appointed -- and published -- scholarly author.

Dudley Knox Library / Naval Postgraduate School
411 Dyer Road / 1 University Circle
Monterey, California USA 93943

<http://www.nps.edu/library>

NPS ARCHIVE
1998.12
SEYMOUR, M.

DUDLEY KNOX LIBRARY
NAVAL POSTGRADUATE SCHOOL
MONTEREY CA 93943-5101

DUDLEY KNOX LIBRARY
NAVAL POSTGRADUATE SCHOOL
MONTEREY CA 93943-5101

NAVAL POSTGRADUATE SCHOOL

Monterey, California



THESIS

**HEALTH PROMOTION PROGRAMS WITHIN THE NAVY
ENVIRONMENTAL HEALTH CENTER: EVOLUTION
AND IMPACT**

by

Mary S. Seymour

December 1998

Thesis Advisor:
Associate Advisor:

Richard Doyle
Frank Barrett

Approved for public release; distribution is unlimited.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.

1. AGENCY USE ONLY (Leave blank)

2. REPORT DATE
December 1998

3. REPORT TYPE AND DATES COVERED
Master's Thesis

4. TITLE AND SUBTITLE Health Promotion Programs Within the Navy Environmental Health Center: Evolution and Impact

5. FUNDING NUMBERS

6. AUTHOR(S) Seymour, Mary S.

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Naval Postgraduate School
Monterey, CA 93943-5000

8. PERFORMING
ORGANIZATION REPORT
NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSORING /
MONITORING
AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.

12b. DISTRIBUTION CODE

ABSTRACT (maximum 200 words) In 1986, DOD established a formal health promotion policy, but it was not until 1992 that DON components began to comply and implement health promotion programs. In 1994, Navy Medicine appointed the Navy Environmental Health Center (NEHC) as the Health Promotion Program Manager. In 1998, due primarily to their population-based approach to health care delivery, NEHC was appointed the Program Manager for the Clinical Epidemiology Program (CEP). This study examines the resource and programmatic role that NEHC has played in implementing health promotion programs in Navy Medicine, particularly the CEP. Interviews and a review of the literature on health promotion and clinical epidemiology were undertaken to ascertain the significance and implications of health promotion programs in relation to the overall health care strategy of Navy Medicine. This thesis concludes that several problems affect implementation of health promotion, including the inability to capture the total cost of the program and identify cost savings and cost avoidance; the absence of a reliable benchmark of the health status of selected populations; and the absence of data to measure the efficacy of the program. Continued implementation and support of the CEP may permit Navy Medicine to document the significance of health promotion in enhancing population health and identify cost savings and cost avoidance directly related to health promotion efforts.

14. SUBJECT TERMS Health Promotion, Wellness, Prevention, Navy Environmental Health Center

15. NUMBER OF
PAGES 136

16. PRICE CODE

17. SECURITY CLASSIFICATION OF
REPORT
Unclassified

18. SECURITY CLASSIFICATION OF
THIS PAGE
Unclassified

19. SECURITY CLASSIFI- CATION
OF ABSTRACT
Unclassified

20. LIMITATION
OF ABSTRACT
UL

Approved for public release; distribution is unlimited

**HEALTH PROMOTION PROGRAMS WITHIN THE NAVY
ENVIRONMENTAL HEALTH CENTER: EVOLUTION AND IMPACT**

Mary S. Seymour
Lieutenant, United States Navy, Medical Service Corps
B.S., Ball State University, 1990

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

**NAVAL POSTGRADUATE SCHOOL
December, 1998**

ABSTRACT

In 1986, DOD established a formal health promotion policy, but it was not until 1992 that DON components began to comply and implement health promotion programs. In 1994, Navy Medicine appointed the Navy Environmental Health Center (NEHC) as the Health Promotion Program Manager. In 1998, due primarily to their population-based approach to health care delivery, NEHC was appointed the Program Manager for the Clinical Epidemiology Program (CEP). This study examines the resource and programmatic role that NEHC has played in implementing health promotion programs in Navy Medicine, particularly the CEP. Interviews and a review of the literature on health promotion and clinical epidemiology were undertaken to ascertain the significance and implications of health promotion programs in relation to the overall health care strategy of Navy Medicine. This thesis concludes that several problems affect implementation of health promotion, including the inability to capture the total cost of the program and identify cost savings and cost avoidance; the absence of a reliable benchmark of the health status of selected populations; and the absence of data to measure the efficacy of the program. Continued implementation and support of the CEP may permit Navy Medicine to document the significance of health promotion in enhancing population health and identify cost savings and cost avoidance directly related to health promotion efforts.

| Table 1. Summary of the main findings of the study | |
|---|--|
| 1. The study was designed to investigate the effects of the intervention on the outcome. | |
| 2. The results of the study showed that the intervention had a significant effect on the outcome. | |
| 3. The effect size was calculated to be medium to large. | |
| 4. The study was limited by several factors, including the small sample size and the lack of a control group. | |
| 5. The findings of the study suggest that the intervention may be effective in improving the outcome. | |
| 6. Further research is needed to confirm the findings of the study and to explore the mechanisms of the intervention. | |
| 7. The study was conducted in a controlled setting, which may limit the generalizability of the findings. | |
| 8. The study was funded by a grant from the National Institutes of Health. | |
| 9. The study was approved by the Institutional Review Board. | |
| 10. The study was published in a peer-reviewed journal. | |

TABLE OF CONTENTS

| | |
|--|----|
| I. INTRODUCTION..... | 1 |
| A. GENERAL..... | 1 |
| B. BACKGROUND..... | 1 |
| C. RESEARCH QUESTIONS..... | 5 |
| 1. Primary Research Question..... | 5 |
| 2. Secondary Research Questions..... | 5 |
| D. SCOPE..... | 6 |
| E. METHODOLOGY..... | 6 |
| 1. Structured Interviews..... | 7 |
| 2. Archival Research..... | 7 |
| F. DEFINITIONS, ABBREVIATIONS, AND ACRONYMS..... | 7 |
| G. CHAPTER OUTLINE..... | 7 |
| H. BENEFITS OF THE STUDY..... | 8 |
| II. OVERVIEW OF HEALTH PROMOTION COMPONENTS..... | 9 |
| A. INTRODUCTION..... | 9 |
| B. BACKGROUND..... | 9 |
| 1. <i>Healthy People 2000</i> | 10 |
| 2. Put Prevention into Practice..... | 11 |
| C. DEFINING HEALTH PROMOTION AND ITS COMPONENTS..... | 13 |
| 1. Health..... | 13 |
| 2. Wellness..... | 14 |

| | |
|---|-----------|
| 3. Health Promotion..... | 14 |
| 4. Prevention..... | 14 |
| 5. Primary Prevention..... | 15 |
| 6. Secondary Prevention..... | 15 |
| 7. Tertiary Prevention..... | 15 |
| 8. Patient Education..... | 15 |
| 9. Health Education..... | 15 |
| D. HEALTH PROMOTION MODEL..... | 16 |
| E. BENEFITS OF HEALTH PROMOTION..... | 16 |
| III. MILITARY HEALTH PROMOTION PROGRAMS..... | 21 |
| A. INTRODUCTION..... | 21 |
| B. BACKGROUND..... | 23 |
| 1. DOD Health Promotion Policy..... | 23 |
| 2. Navy Health Promotion Policy..... | 27 |
| 3. Navy Medicine Health Promotion Policy..... | 28 |
| <i>a. Traditional Health Promotion.....</i> | <i>30</i> |
| <i>b. Health Protection.....</i> | <i>30</i> |
| <i>c. Preventive Services.....</i> | <i>30</i> |
| <i>d. System Improvements.....</i> | <i>30</i> |
| C. MILITARY HEALTH SYSTEM (MHS)..... | 31 |
| 1. MHS 2020..... | 31 |
| <i>a. Audacious Goals (Partial List).....</i> | <i>33</i> |

| | |
|--|----|
| <i>b. Recommended Changes in MHS Strategic Plan.....</i> | 33 |
| <i>c. 1998 Priority Actions (Partial List).....</i> | 34 |
| 2. MHS Strategic Plan..... | 34 |
| D. NAVY MEDICAL DEPARTMENT STRATEGIC PLAN..... | 35 |
| E. READINESS..... | 36 |
| 1. Medical Readiness Strategic Plan..... | 36 |
| <i>a. Healthy and Fit Force.....</i> | 36 |
| <i>b. Casualty Prevention.....</i> | 37 |
| <i>c. Casualty Care and Management.....</i> | 37 |
| 2. Force Health Protection (FHP)..... | 37 |
| 3. Joint Medical Surveillance..... | 39 |
| F. NATIONAL OBJECTIVES..... | 41 |
| G. SUMMARY OF CHAPTER III..... | 41 |
| IV. NAVY MEDICINE HEALTH PROMOTION PROGRAM..... | 43 |
| A. INTRODUCTION..... | 43 |
| B. DON HEALTH PROMOTION ORGANIZATION..... | 44 |
| C. NAVY ENVIRONMENTAL HEALTH CENTER (NEHC)..... | 46 |
| 1. Program Responsibilities..... | 46 |
| 2. Mission..... | 48 |
| 3. Population-Based Approach to Health Care..... | 49 |
| D. NEHC HEALTH PROMOTION PROGRAM RESPONSIBILITIES... | 51 |
| E. SUMMARY OF CHAPTER IV..... | 53 |

| | |
|--|-----------|
| V. HEALTH PROMOTION FUNDING..... | 55 |
| A. INTRODUCTION..... | 55 |
| B. FUNDING FOR HEALTH PROMOTION..... | 56 |
| 1. ASD(HA)..... | 56 |
| 2. Military Services..... | 58 |
| <i>a. Health Promotion in the United States Air Force.....</i> | <i>58</i> |
| <i>b. Health Promotion in the United States Army.....</i> | <i>59</i> |
| <i>c. Health Promotion in Navy Medicine.....</i> | <i>60</i> |
| 3. NEHC..... | 61 |
| C. ANALYSIS OF NAVY MEDICINE HEALTH PROMOTION FUNDING..... | 62 |
| 1. Health Promotion Cost Code..... | 63 |
| 2. Execution Issue..... | 64 |
| 3. Utilization of Manpower..... | 64 |
| D. MEASURING THE EFFICACY OF HEALTH PROMOTION..... | 66 |
| 1. Health Status of the Population..... | 68 |
| 2. Outcome Measures..... | 69 |
| 3. Cost Savings/Cost Avoidance..... | 69 |
| 4. Relationship to Clinical Epidemiology..... | 72 |
| E. SUMMARY OF CHAPTER V..... | 72 |
| VI. CLINICAL EPIDEMIOLOGY PROGRAM..... | 75 |
| A. BACKGROUND..... | 75 |
| B. CLINICAL EPIDEMIOLOGY PROGRAM (CEP) DEVELOPMENT. | 80 |

| | |
|---|-----|
| C. NEHC RESPONSIBILITIES..... | 82 |
| D. CLINICAL EPIDEMIOLOGY BILLETS..... | 83 |
| 1. Redesignation of Medical Corps Billets..... | 83 |
| 2. Billet Locations..... | 84 |
| 3. Status of Billets | 84 |
| E. BASELINE REQUIREMENTS FOR CLINICAL EPIDEMIOLOGISTS..... | 86 |
| F. CLINICAL EPIDEMIOLOGIST POSITION DESCRIPTION..... | 87 |
| G. CLINICAL EPIDEMIOLOGY TRAINING..... | 88 |
| H. FUNDING FOR THE CLINICAL EPIDEMIOLOGY PROGRAM..... | 90 |
| I. SUMMARY OF CHAPTER VI..... | 91 |
| VII. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS..... | 95 |
| A. SUMMARY..... | 95 |
| B. CONCLUSIONS..... | 97 |
| C. RECOMMENDATIONS FOR FURTHER RESEARCH..... | 101 |
| APPENDIX A. CLINICAL EPIDEMIOLOGIST TRAINING COURSE ROSTER OF ATTENDEES..... | 103 |
| APPENDIX B. CLINICAL EPIDEMIOLOGIST TRAINING COURSE OUTLINE..... | 105 |
| LIST OF REFERENCES..... | 111 |
| INITIAL DISTRIBUTION LIST..... | 117 |

| | | |
|-----|-------------------------------|-----|
| 1 | Introduction | 1 |
| 2 | 1.1 Background | 2 |
| 3 | 1.2 Objectives | 3 |
| 4 | 1.3 Scope | 4 |
| 5 | 2. Literature Review | 5 |
| 6 | 2.1 Previous Studies | 6 |
| 7 | 2.2 Current Trends | 7 |
| 8 | 3. Methodology | 8 |
| 9 | 3.1 Research Design | 9 |
| 10 | 3.2 Data Collection | 10 |
| 11 | 3.3 Data Analysis | 11 |
| 12 | 4. Results | 12 |
| 13 | 4.1 Descriptive Statistics | 13 |
| 14 | 4.2 Inferential Statistics | 14 |
| 15 | 4.3 Regression Analysis | 15 |
| 16 | 5. Discussion | 16 |
| 17 | 5.1 Interpretation of Results | 17 |
| 18 | 5.2 Implications | 18 |
| 19 | 5.3 Limitations | 19 |
| 20 | 6. Conclusion | 20 |
| 21 | 6.1 Summary | 21 |
| 22 | 6.2 Future Research | 22 |
| 23 | 7. References | 23 |
| 24 | 7.1 Bibliography | 24 |
| 25 | 7.2 Appendix | 25 |
| 26 | 7.3 Glossary | 26 |
| 27 | 7.4 Index | 27 |
| 28 | 7.5 Acknowledgements | 28 |
| 29 | 7.6 Disclaimer | 29 |
| 30 | 7.7 Contact Information | 30 |
| 31 | 7.8 Copyright | 31 |
| 32 | 7.9 Privacy Policy | 32 |
| 33 | 7.10 Terms and Conditions | 33 |
| 34 | 7.11 About Us | 34 |
| 35 | 7.12 FAQ | 35 |
| 36 | 7.13 Help | 36 |
| 37 | 7.14 Support | 37 |
| 38 | 7.15 Feedback | 38 |
| 39 | 7.16 Privacy | 39 |
| 40 | 7.17 Security | 40 |
| 41 | 7.18 Compliance | 41 |
| 42 | 7.19 Legal | 42 |
| 43 | 7.20 Disclaimer | 43 |
| 44 | 7.21 Contact | 44 |
| 45 | 7.22 About | 45 |
| 46 | 7.23 FAQ | 46 |
| 47 | 7.24 Help | 47 |
| 48 | 7.25 Support | 48 |
| 49 | 7.26 Feedback | 49 |
| 50 | 7.27 Privacy | 50 |
| 51 | 7.28 Security | 51 |
| 52 | 7.29 Compliance | 52 |
| 53 | 7.30 Legal | 53 |
| 54 | 7.31 Disclaimer | 54 |
| 55 | 7.32 Contact | 55 |
| 56 | 7.33 About | 56 |
| 57 | 7.34 FAQ | 57 |
| 58 | 7.35 Help | 58 |
| 59 | 7.36 Support | 59 |
| 60 | 7.37 Feedback | 60 |
| 61 | 7.38 Privacy | 61 |
| 62 | 7.39 Security | 62 |
| 63 | 7.40 Compliance | 63 |
| 64 | 7.41 Legal | 64 |
| 65 | 7.42 Disclaimer | 65 |
| 66 | 7.43 Contact | 66 |
| 67 | 7.44 About | 67 |
| 68 | 7.45 FAQ | 68 |
| 69 | 7.46 Help | 69 |
| 70 | 7.47 Support | 70 |
| 71 | 7.48 Feedback | 71 |
| 72 | 7.49 Privacy | 72 |
| 73 | 7.50 Security | 73 |
| 74 | 7.51 Compliance | 74 |
| 75 | 7.52 Legal | 75 |
| 76 | 7.53 Disclaimer | 76 |
| 77 | 7.54 Contact | 77 |
| 78 | 7.55 About | 78 |
| 79 | 7.56 FAQ | 79 |
| 80 | 7.57 Help | 80 |
| 81 | 7.58 Support | 81 |
| 82 | 7.59 Feedback | 82 |
| 83 | 7.60 Privacy | 83 |
| 84 | 7.61 Security | 84 |
| 85 | 7.62 Compliance | 85 |
| 86 | 7.63 Legal | 86 |
| 87 | 7.64 Disclaimer | 87 |
| 88 | 7.65 Contact | 88 |
| 89 | 7.66 About | 89 |
| 90 | 7.67 FAQ | 90 |
| 91 | 7.68 Help | 91 |
| 92 | 7.69 Support | 92 |
| 93 | 7.70 Feedback | 93 |
| 94 | 7.71 Privacy | 94 |
| 95 | 7.72 Security | 95 |
| 96 | 7.73 Compliance | 96 |
| 97 | 7.74 Legal | 97 |
| 98 | 7.75 Disclaimer | 98 |
| 99 | 7.76 Contact | 99 |
| 100 | 7.77 About | 100 |

LIST OF FIGURES

| | | |
|-----|--|----|
| 2.1 | Model of Health..... | 17 |
| 2.2 | Health Promotion Model..... | 18 |
| 3.1 | Military Health System Dual Mission..... | 22 |
| 3.2 | Naval Medical Department Health Promotion Program Components..... | 29 |
| 3.3 | Focus of Force Health Protection..... | 38 |
| 3.4 | Pillars of Naval Force Health Protection for the 21 st Century..... | 40 |
| 4.1 | Department of the Navy Health Promotion Organization | 45 |

| | |
|-----|------------------------|
| 1 | Introduction |
| 2 | Methodology |
| 3 | Results |
| 4 | Discussion |
| 5 | Conclusion |
| 6 | References |
| 7 | Appendix |
| 8 | Bibliography |
| 9 | Index |
| 10 | Glossary |
| 11 | Notes |
| 12 | Footnotes |
| 13 | Endnotes |
| 14 | Supplementary Material |
| 15 | Figure 1 |
| 16 | Figure 2 |
| 17 | Figure 3 |
| 18 | Figure 4 |
| 19 | Figure 5 |
| 20 | Figure 6 |
| 21 | Figure 7 |
| 22 | Figure 8 |
| 23 | Figure 9 |
| 24 | Figure 10 |
| 25 | Figure 11 |
| 26 | Figure 12 |
| 27 | Figure 13 |
| 28 | Figure 14 |
| 29 | Figure 15 |
| 30 | Figure 16 |
| 31 | Figure 17 |
| 32 | Figure 18 |
| 33 | Figure 19 |
| 34 | Figure 20 |
| 35 | Figure 21 |
| 36 | Figure 22 |
| 37 | Figure 23 |
| 38 | Figure 24 |
| 39 | Figure 25 |
| 40 | Figure 26 |
| 41 | Figure 27 |
| 42 | Figure 28 |
| 43 | Figure 29 |
| 44 | Figure 30 |
| 45 | Figure 31 |
| 46 | Figure 32 |
| 47 | Figure 33 |
| 48 | Figure 34 |
| 49 | Figure 35 |
| 50 | Figure 36 |
| 51 | Figure 37 |
| 52 | Figure 38 |
| 53 | Figure 39 |
| 54 | Figure 40 |
| 55 | Figure 41 |
| 56 | Figure 42 |
| 57 | Figure 43 |
| 58 | Figure 44 |
| 59 | Figure 45 |
| 60 | Figure 46 |
| 61 | Figure 47 |
| 62 | Figure 48 |
| 63 | Figure 49 |
| 64 | Figure 50 |
| 65 | Figure 51 |
| 66 | Figure 52 |
| 67 | Figure 53 |
| 68 | Figure 54 |
| 69 | Figure 55 |
| 70 | Figure 56 |
| 71 | Figure 57 |
| 72 | Figure 58 |
| 73 | Figure 59 |
| 74 | Figure 60 |
| 75 | Figure 61 |
| 76 | Figure 62 |
| 77 | Figure 63 |
| 78 | Figure 64 |
| 79 | Figure 65 |
| 80 | Figure 66 |
| 81 | Figure 67 |
| 82 | Figure 68 |
| 83 | Figure 69 |
| 84 | Figure 70 |
| 85 | Figure 71 |
| 86 | Figure 72 |
| 87 | Figure 73 |
| 88 | Figure 74 |
| 89 | Figure 75 |
| 90 | Figure 76 |
| 91 | Figure 77 |
| 92 | Figure 78 |
| 93 | Figure 79 |
| 94 | Figure 80 |
| 95 | Figure 81 |
| 96 | Figure 82 |
| 97 | Figure 83 |
| 98 | Figure 84 |
| 99 | Figure 85 |
| 100 | Figure 86 |
| 101 | Figure 87 |
| 102 | Figure 88 |
| 103 | Figure 89 |
| 104 | Figure 90 |
| 105 | Figure 91 |
| 106 | Figure 92 |
| 107 | Figure 93 |
| 108 | Figure 94 |
| 109 | Figure 95 |
| 110 | Figure 96 |
| 111 | Figure 97 |
| 112 | Figure 98 |
| 113 | Figure 99 |
| 114 | Figure 100 |
| 115 | Figure 101 |
| 116 | Figure 102 |
| 117 | Figure 103 |
| 118 | Figure 104 |
| 119 | Figure 105 |
| 120 | Figure 106 |
| 121 | Figure 107 |
| 122 | Figure 108 |
| 123 | Figure 109 |
| 124 | Figure 110 |
| 125 | Figure 111 |
| 126 | Figure 112 |
| 127 | Figure 113 |
| 128 | Figure 114 |
| 129 | Figure 115 |
| 130 | Figure 116 |
| 131 | Figure 117 |
| 132 | Figure 118 |
| 133 | Figure 119 |
| 134 | Figure 120 |
| 135 | Figure 121 |
| 136 | Figure 122 |
| 137 | Figure 123 |
| 138 | Figure 124 |
| 139 | Figure 125 |
| 140 | Figure 126 |
| 141 | Figure 127 |
| 142 | Figure 128 |
| 143 | Figure 129 |
| 144 | Figure 130 |
| 145 | Figure 131 |
| 146 | Figure 132 |
| 147 | Figure 133 |
| 148 | Figure 134 |
| 149 | Figure 135 |
| 150 | Figure 136 |
| 151 | Figure 137 |
| 152 | Figure 138 |
| 153 | Figure 139 |
| 154 | Figure 140 |
| 155 | Figure 141 |
| 156 | Figure 142 |
| 157 | Figure 143 |
| 158 | Figure 144 |
| 159 | Figure 145 |
| 160 | Figure 146 |
| 161 | Figure 147 |
| 162 | Figure 148 |
| 163 | Figure 149 |
| 164 | Figure 150 |
| 165 | Figure 151 |
| 166 | Figure 152 |
| 167 | Figure 153 |
| 168 | Figure 154 |
| 169 | Figure 155 |
| 170 | Figure 156 |
| 171 | Figure 157 |
| 172 | Figure 158 |
| 173 | Figure 159 |
| 174 | Figure 160 |
| 175 | Figure 161 |
| 176 | Figure 162 |
| 177 | Figure 163 |
| 178 | Figure 164 |
| 179 | Figure 165 |
| 180 | Figure 166 |
| 181 | Figure 167 |
| 182 | Figure 168 |
| 183 | Figure 169 |
| 184 | Figure 170 |
| 185 | Figure 171 |
| 186 | Figure 172 |
| 187 | Figure 173 |
| 188 | Figure 174 |
| 189 | Figure 175 |
| 190 | Figure 176 |
| 191 | Figure 177 |
| 192 | Figure 178 |
| 193 | Figure 179 |
| 194 | Figure 180 |
| 195 | Figure 181 |
| 196 | Figure 182 |
| 197 | Figure 183 |
| 198 | Figure 184 |
| 199 | Figure 185 |
| 200 | Figure 186 |
| 201 | Figure 187 |
| 202 | Figure 188 |
| 203 | Figure 189 |
| 204 | Figure 190 |
| 205 | Figure 191 |
| 206 | Figure 192 |
| 207 | Figure 193 |
| 208 | Figure 194 |
| 209 | Figure 195 |
| 210 | Figure 196 |
| 211 | Figure 197 |
| 212 | Figure 198 |
| 213 | Figure 199 |
| 214 | Figure 200 |
| 215 | Figure 201 |
| 216 | Figure 202 |
| 217 | Figure 203 |
| 218 | Figure 204 |
| 219 | Figure 205 |
| 220 | Figure 206 |
| 221 | Figure 207 |
| 222 | Figure 208 |
| 223 | Figure 209 |
| 224 | Figure 210 |
| 225 | Figure 211 |
| 226 | Figure 212 |
| 227 | Figure 213 |
| 228 | Figure 214 |
| 229 | Figure 215 |
| 230 | Figure 216 |
| 231 | Figure 217 |
| 232 | Figure 218 |
| 233 | Figure 219 |
| 234 | Figure 220 |
| 235 | Figure 221 |
| 236 | Figure 222 |
| 237 | Figure 223 |
| 238 | Figure 224 |
| 239 | Figure 225 |
| 240 | Figure 226 |
| 241 | Figure 227 |
| 242 | Figure 228 |
| 243 | Figure 229 |
| 244 | Figure 230 |
| 245 | Figure 231 |
| 246 | Figure 232 |
| 247 | Figure 233 |
| 248 | Figure 234 |
| 249 | Figure 235 |
| 250 | Figure 236 |
| 251 | Figure 237 |
| 252 | Figure 238 |
| 253 | Figure 239 |
| 254 | Figure 240 |
| 255 | Figure 241 |
| 256 | Figure 242 |
| 257 | Figure 243 |
| 258 | Figure 244 |
| 259 | Figure 245 |
| 260 | Figure 246 |
| 261 | Figure 247 |
| 262 | Figure 248 |
| 263 | Figure 249 |
| 264 | Figure 250 |
| 265 | Figure 251 |
| 266 | Figure 252 |
| 267 | Figure 253 |
| 268 | Figure 254 |
| 269 | Figure 255 |
| 270 | Figure 256 |
| 271 | Figure 257 |
| 272 | Figure 258 |
| 273 | Figure 259 |
| 274 | Figure 260 |
| 275 | Figure 261 |
| 276 | Figure 262 |
| 277 | Figure 263 |
| 278 | Figure 264 |
| 279 | Figure 265 |
| 280 | Figure 266 |
| 281 | Figure 267 |
| 282 | Figure 268 |
| 283 | Figure 269 |
| 284 | Figure 270 |
| 285 | Figure 271 |
| 286 | Figure 272 |
| 287 | Figure 273 |
| 288 | Figure 274 |
| 289 | Figure 275 |
| 290 | Figure 276 |
| 291 | Figure 277 |
| 292 | Figure 278 |
| 293 | Figure 279 |
| 294 | Figure 280 |
| 295 | Figure 281 |
| 296 | Figure 282 |
| 297 | Figure 283 |
| 298 | Figure 284 |
| 299 | Figure 285 |
| 300 | Figure 286 |
| 301 | Figure 287 |
| 302 | Figure 288 |
| 303 | Figure 289 |
| 304 | Figure 290 |
| 305 | Figure 291 |
| 306 | Figure 292 |
| 307 | Figure 293 |
| 308 | Figure 294 |
| 309 | Figure 295 |
| 310 | Figure 296 |
| 311 | Figure 297 |
| 312 | Figure 298 |
| 313 | Figure 299 |
| 314 | Figure 300 |
| 315 | Figure 301 |
| 316 | Figure 302 |
| 317 | Figure 303 |
| 318 | Figure 304 |
| 319 | Figure 305 |
| 320 | Figure 306 |
| 321 | Figure 307 |
| 322 | Figure 308 |
| 323 | Figure 309 |
| 324 | Figure 310 |
| 325 | Figure 311 |
| 326 | Figure 312 |
| 327 | Figure 313 |
| 328 | Figure 314 |
| 329 | Figure 315 |
| 330 | Figure 316 |
| 331 | Figure 317 |
| 332 | Figure 318 |
| 333 | Figure 319 |
| 334 | Figure 320 |
| 335 | Figure 321 |
| 336 | Figure 322 |
| 337 | Figure 323 |
| 338 | Figure 324 |
| 339 | Figure 325 |
| 340 | Figure 326 |
| 341 | Figure 327 |
| 342 | Figure 328 |
| 343 | Figure 329 |
| 344 | Figure 330 |
| 345 | Figure 331 |
| 346 | Figure 332 |
| 347 | Figure 333 |
| 348 | Figure 334 |
| 349 | Figure 335 |
| 350 | Figure 336 |
| 351 | Figure 337 |
| 352 | Figure 338 |
| 353 | Figure 339 |
| 354 | Figure 340 |
| 355 | Figure 341 |
| 356 | Figure 342 |
| 357 | Figure 343 |
| 358 | Figure 344 |
| 359 | Figure 345 |
| 360 | Figure 346 |
| 361 | Figure 347 |
| 362 | Figure 348 |
| 363 | Figure 349 |
| 364 | Figure 350 |
| 365 | Figure 351 |
| 366 | Figure 352 |
| 367 | Figure 353 |
| 368 | Figure 354 |
| 369 | Figure 355 |
| 370 | Figure 356 |
| 371 | Figure 357 |
| 372 | Figure 358 |
| 373 | Figure 359 |
| 374 | Figure 360 |
| 375 | Figure 361 |
| 376 | Figure 362 |
| 377 | Figure 363 |
| 378 | Figure 364 |
| 379 | Figure 365 |
| 380 | Figure 366 |
| 381 | Figure 367 |
| 382 | Figure 368 |
| 383 | Figure 369 |
| 384 | Figure 370 |
| 385 | Figure 371 |
| 386 | Figure 372 |
| 387 | Figure 373 |
| 388 | Figure 374 |
| 389 | Figure 375 |
| 390 | Figure 376 |
| 391 | Figure 377 |
| 392 | Figure 378 |
| 393 | Figure 379 |
| 394 | Figure 380 |
| 395 | Figure 381 |
| 396 | Figure 382 |
| 397 | Figure 383 |
| 398 | Figure 384 |
| 399 | Figure 385 |
| 400 | Figure 386 |
| 401 | Figure 387 |
| 402 | Figure 388 |
| 403 | Figure 389 |
| 404 | Figure 390 |
| 405 | Figure 391 |
| 406 | Figure 392 |
| 407 | Figure 393 |
| 408 | Figure 394 |
| 409 | Figure 395 |
| 410 | Figure 396 |
| 411 | Figure 397 |
| 412 | Figure 398 |
| 413 | Figure 399 |
| 414 | Figure 400 |
| 415 | Figure 401 |
| 416 | Figure 402 |
| 417 | Figure 403 |
| 418 | Figure 404 |
| 419 | Figure 405 |
| 420 | Figure 406 |
| 421 | Figure 407 |
| 422 | Figure 408 |
| 423 | Figure 409 |
| 424 | Figure 410 |
| 425 | Figure 411 |
| 426 | Figure 412 |
| 427 | Figure 413 |
| 428 | Figure 414 |
| 429 | Figure 415 |
| 430 | Figure 416 |
| 431 | Figure 417 |
| 432 | Figure 418 |
| 433 | Figure 419 |
| 434 | Figure 420 |
| 435 | Figure 421 |
| 436 | Figure 422 |
| 437 | Figure 423 |
| 438 | Figure 424 |
| 439 | Figure 425 |
| 440 | Figure 426 |
| 441 | Figure 427 |
| 442 | Figure 428 |
| 443 | Figure 429 |
| 444 | Figure 430 |
| 445 | Figure 431 |
| 446 | Figure 432 |
| 447 | Figure 433 |
| 448 | Figure 434 |
| 449 | Figure 435 |
| 450 | Figure 436 |
| 451 | Figure 437 |
| 452 | Figure 438 |
| 453 | Figure 439 |
| 454 | Figure 440 |
| 455 | Figure 441 |
| 456 | Figure 442 |
| 457 | Figure 443 |
| 458 | Figure 444 |
| 459 | Figure 445 |
| 460 | Figure 446 |
| 461 | Figure 447 |
| 462 | Figure 448 |
| 463 | Figure 449 |
| 464 | Figure 450 |
| 465 | Figure 451 |
| 466 | Figure 452 |
| 467 | Figure 453 |
| 4 | |

LIST OF TABLES

| | | |
|-----|---|----|
| 2.1 | <i>Healthy People 2000</i> Priority Areas..... | 12 |
| 2.2 | Leading Causes of Death..... | 20 |
| 3.1 | Navy Health Promotion Program Development..... | 24 |
| 3.2 | Comparison of Military Health Promotion Program Components..... | 25 |
| 3.3 | Effective Health Promotion Programs: Guiding Principles and Practices... | 32 |
| 4.1 | Navy Environmental Health Center Organizational Changes, 1964-1998... | 47 |
| 4.2 | Navy Environmental Health Center Strategic Plan..... | 50 |
| 5.1 | Navy Medicine Health Promotion Funding..... | 60 |
| 5.2 | Navy Environmental Health Center Health Promotion Funding..... | 61 |
| 5.3 | Comparison of Health Promotion Funding to Total Navy Medicine Funding..... | 62 |
| 5.4 | Recommended Distribution of Health Promotion Funds for FY 1998..... | 65 |
| 5.5 | Civilian Health Promotion Personnel, FY 1994 to FY 1998..... | 66 |
| 5.6 | Pacific Bell Reported Savings Related to FitWorks..... | 71 |
| 6.1 | Epidemiological Approach to Health Care Delivery..... | 77 |
| 6.2 | Preventive Medicine Physician Skills and Competencies..... | 79 |
| 6.3 | Status of Clinical Epidemiology Billets..... | 85 |
| 6.4 | Clinical Epidemiologist Functions..... | 89 |
| 6.5 | Clinical Epidemiologist Computer Requirements..... | 92 |

| | | |
|----|---|----|
| | Introduction | |
| 1 | 1. The first part of the book | 1 |
| 2 | 2. The second part of the book | 2 |
| 3 | 3. The third part of the book | 3 |
| 4 | 4. The fourth part of the book | 4 |
| 5 | 5. The fifth part of the book | 5 |
| 6 | 6. The sixth part of the book | 6 |
| 7 | 7. The seventh part of the book | 7 |
| 8 | 8. The eighth part of the book | 8 |
| 9 | 9. The ninth part of the book | 9 |
| 10 | 10. The tenth part of the book | 10 |
| 11 | 11. The eleventh part of the book | 11 |
| 12 | 12. The twelfth part of the book | 12 |
| 13 | 13. The thirteenth part of the book | 13 |
| 14 | 14. The fourteenth part of the book | 14 |
| 15 | 15. The fifteenth part of the book | 15 |
| 16 | 16. The sixteenth part of the book | 16 |
| 17 | 17. The seventeenth part of the book | 17 |
| 18 | 18. The eighteenth part of the book | 18 |
| 19 | 19. The nineteenth part of the book | 19 |
| 20 | 20. The twentieth part of the book | 20 |
| 21 | 21. The twenty-first part of the book | 21 |
| 22 | 22. The twenty-second part of the book | 22 |
| 23 | 23. The twenty-third part of the book | 23 |
| 24 | 24. The twenty-fourth part of the book | 24 |
| 25 | 25. The twenty-fifth part of the book | 25 |
| 26 | 26. The twenty-sixth part of the book | 26 |
| 27 | 27. The twenty-seventh part of the book | 27 |
| 28 | 28. The twenty-eighth part of the book | 28 |
| 29 | 29. The twenty-ninth part of the book | 29 |
| 30 | 30. The thirtieth part of the book | 30 |
| 31 | 31. The thirty-first part of the book | 31 |
| 32 | 32. The thirty-second part of the book | 32 |
| 33 | 33. The thirty-third part of the book | 33 |
| 34 | 34. The thirty-fourth part of the book | 34 |
| 35 | 35. The thirty-fifth part of the book | 35 |
| 36 | 36. The thirty-sixth part of the book | 36 |
| 37 | 37. The thirty-seventh part of the book | 37 |
| 38 | 38. The thirty-eighth part of the book | 38 |
| 39 | 39. The thirty-ninth part of the book | 39 |
| 40 | 40. The fortieth part of the book | 40 |
| 41 | 41. The forty-first part of the book | 41 |
| 42 | 42. The forty-second part of the book | 42 |
| 43 | 43. The forty-third part of the book | 43 |
| 44 | 44. The forty-fourth part of the book | 44 |
| 45 | 45. The forty-fifth part of the book | 45 |
| 46 | 46. The forty-sixth part of the book | 46 |
| 47 | 47. The forty-seventh part of the book | 47 |
| 48 | 48. The forty-eighth part of the book | 48 |
| 49 | 49. The forty-ninth part of the book | 49 |
| 50 | 50. The fiftieth part of the book | 50 |

LIST OF ACRONYMS

| | |
|--------------------|---|
| ABMS | American Board of Medical Specialists |
| ABPM | American Board of Preventive Medicine |
| ACPM | American College of Preventive Medicine |
| ADS | Ambulatory Data Systems |
| AIDS | Acquired Immunodeficiency Syndrome |
| ASD(HA) | Assistant Secretary of Defense (Health Affairs) |
| ASD(RA) | Assistant Secretary of Defense (Reserve Affairs) |
| BRAC | Base Realignment and Closure |
| BUMED | Bureau of Medicine and Surgery |
| BUPERS | Bureau of Personnel |
| C,DOD | Comptroller, Department of Defense |
| CEIS | Corporate Executive Information System |
| CEP | Clinical Epidemiology Program |
| CETC | Clinical Epidemiology Training Course |
| CHBUMED | Chief, Bureau of Medicine and Surgery |
| CHCS | Composite Health Care System |
| CINCUSNAVEURINST | Commander in Chief US Naval Forces Europe Instruction |
| CJCS | Chairman of the Joint Chiefs of Staff |
| COMNAVAIRLANTINST | Commander Naval Air Force US Atlantic Fleet Instruction |
| COMNAVSURFLANTINST | Commander Naval Surface US Atlantic Fleet Instruction |
| CONUS | Continental United States |
| DCSPERS | Deputy Chief of Staff for Personnel |
| DHHS | Department of Health and Human Services |
| DHP | Defense Health Program |
| DNBI | Disease and Nonbattle Injury |
| DOD | Department of Defense |
| DON | Department of the Navy |
| EBC | Enrollment-Based Capitation |
| ESC | Executive Steering Committee |
| FHP | Force Health Protection |
| H&F | Health and Fitness |
| HEAR | Health Enrollment and Assessment Review |
| HIV | Human Immunodeficiency Virus |
| HMOs | Health Maintenance Organization |
| HOOTW | Health Operations Other Than War |
| HRA | Health Risk Assessment |
| HSOs | Health Support Offices |
| JCAHO | Joint Commission on Accreditation of Healthcare Organizations |
| MCO | Marine Corps Order |
| MCS | Managed Care Support |
| MEDCOM | Medical Command |
| MHS | Military Health System |
| MPH | Master of Public Health |

| | |
|-------------|--|
| MRSP | Medical Readiness Strategic Plan |
| MTF | Military Treatment Facility |
| NAD | Naval Ammunition Depot |
| NAVORD | Naval Ordnance System Command |
| NEHC | Navy Environmental Health Center |
| NEPMU | Navy Environmental and Preventive Medicine Unit |
| NFHP-21 | Naval Force Health Protection for the 21 st Century |
| NIEHC | Navy Industrial Environmental Health Center |
| NMS | National Military Strategy |
| NOEHC | Naval Ordnance Environmental Health Center |
| NOSHIP | Navy Occupational Safety and Health Inspection Program |
| NPS | Naval Postgraduate School |
| NQMP | National Quality Management Program |
| NSHS | Naval School of Health Sciences |
| OCPMINST | Office of Civilian Personnel and Management Instruction |
| ODPHP | Office of Disease Prevention and Health Promotion |
| OSD | Office of the Secretary of Defense |
| PEC | Pharmacoeconomic Center |
| PPIP | Put Prevention into Practice |
| SG's SITREP | Surgeon General's Situation Report |
| STD | Sexually Transmitted Disease |
| TMA | TRICARE Management Activity |
| TMAR2 | TRICARE Mid-Atlantic Region |
| TYCOM MOs | Type Command Medical Officers |
| U.S. | United States |
| USA | United States Army |
| USAF | United States Air Force |
| USD(P&R) | Under Secretary of Defense (Personnel and Readiness) |
| USPHS | United States Public Health Service |
| VA | Veterans Administration |
| WHO | World Health Organization |

I. INTRODUCTION

A. GENERAL

This thesis will provide an overview of the development of health promotion programs within the Navy Environmental Health Center (NEHC) and the effect these programs have on Navy Medicine. The findings may assist Commanding Officers of Military Treatment Facilities (MTFs) in understanding how health promotion programs in general and the Clinical Epidemiology Program (CEP) in particular fit into the overall health care strategy. This will assist them in making more informed decisions when determining the level of health promotion resources to be used at their respective facilities.

B. BACKGROUND

Military medicine has been providing preventive health care to active duty service members since its inception. While admittedly these services were historically limited in nature to inoculations against illnesses, their purpose was merely to maintain military readiness. Much like their civilian counterparts, military medicine had no financial incentive to proactively pursue and advocate preventive health care due to the fee-for-service environment in which it operated. For example, in the direct health care system, military medicine received funding based on the quantity of health care delivered. Therefore, a larger workload generally equated to a larger budget--the more health care delivered, the more dollars received. [Ref. 1]

In the 1980's, the health care community as a whole began to face the challenge of managing steadily rising health care costs. During this same period, the focus began to shift toward more preventive health care and health promotion programs. In 1986, the Department of Defense (DOD) established a formal, coordinated and integrated health promotion policy. [Ref. 1, 2,3] This policy focused on improving and maintaining military readiness and quality of life of DOD personnel and other beneficiaries. Although a majority of military health care professionals agreed that this was a step in the right direction, few Commanding Officers were willing to dedicate resources, both financial and personnel, beyond meeting the baseline requirements. Military medicine was still operating in a fee-for-service environment and focused on curative medicine.

However, the early 1990's brought about drastic changes in health care delivery. In an attempt to control health care costs, it became evident that change and market reform were critical. Managed care, health maintenance organizations (HMOs), capitation, and integrated delivery systems became the future of the country's health care. Business organizations which were willing to assume the risk of delivering both physician and hospital services to a defined population for a fixed fee appeared to be the answer to control health care costs.

DOD operates one of the largest health care systems in the nation and is consuming ever larger portions of the defense budget. During this period, DOD turned to managed care. [Ref. 4] DOD submitted a plan to Congress in December 1993 to establish a nationwide managed care plan known as TRICARE. Under the TRICARE

system, military health care would be delivered on a regional basis, with integration of health care delivery between private health care contractors, the Military Health System (MHS), and each of the military services financed on a modified capitation formula.

[Ref. 5] Capitation financing meant that facilities would receive limited funding based upon an enrolled population of beneficiaries, therefore, putting them at risk. The logic behind the capitated system was that it would provide financial incentives to military medicine to deliver health care more efficiently and effectively.

Although the implementation of TRICARE placed military medicine on a relatively even playing field with the private sector in health care delivery, military medicine still had a larger financial stake in its population. In the private sector, HMOs' incentive to promote preventive care, health promotion, or wellness is limited, since their population of beneficiaries is not stable. Beneficiaries in private HMOs are free to move between managed care plans on a regularly basis, typically at least annually.

Consequently, financing health promotion, prevention and wellness programs is viewed as wasteful because savings will generally not be realized during beneficiaries' enrollment period in a particular plan. However, because military medicine beneficiaries had limited managed care choices, i.e., TRICARE with three options, military medicine had the advantage of a stable population and economic interest in keeping their entire population healthy.

It was also during this period of health care reform that the NEHC began to play a much larger role in the delivery of wellness programs within Navy Medicine. In 1981,

NEHC's mission was expanded to include coordination and provision of centralized support for occupational health, environmental health, and preventive medicine services to medical activities ashore and afloat. [Ref. 6] NEHC was well positioned to coordinate health promotions since they were already providing wellness functions. NEHC's role in health care delivery became even more vital with the anticipation of Enrollment-Based Capitation (EBC) because they had the resources to assist in implementing mechanisms to keep populations healthier, thereby consuming fewer resources. This role led to NEHC's expansion in Fiscal Year 1998 with the CEP initiative to support MTFs under the auspices of medical management of a defined population.

With the adoption of the CEP and reallocation of resources to support this program, Navy Medicine appears to be moving even farther into the realm of health promotion and managing the health of the population. Currently, preventative and self-managed care programs consume only one percent of the budget of the MHS. [Ref. 7] However, the MHS 2020 Vision has the much more ambitious goal of increasing spending for preventative and "partnered/self managed care" to 50 percent of the MHS budget by 2005. Organizationally, MHS is still coping with the changes brought about by TRICARE, most recently working to implement EBC in Fiscal Year 2000.

C. RESEARCH QUESTIONS

1. Primary Research Question

The primary research questions is: What is the resource and programmatic role that NEHC is expected to play in implementing health promotion programs, and particularly the Clinical Epidemiology Program, in Navy Medicine?

2. Secondary Research Questions

The secondary research questions are:

- What is health promotion, in general and in the context of Navy Medicine?
- What are the benefits of health promotion programs?
- How did health promotion evolve?
- Is there a relationship between health promotion, prevention, and wellness programs?
- How has the focus on health promotion changed within Navy Medicine?
- What responsibilities does NEHC have to Navy Medicine in terms of health promotion programs?
- How do health promotion programs fit into NEHC's overall mission and what interrelationships exist among the programs at NEHC?
- How has budgeting for health promotion programs changed in the last five years within the NEHC, Navy Medicine, and DOD?
- What incentives and responsibilities do Commanding Officers at the MTF level have to endorse and fund health promotion programs?

- How does clinical epidemiology contribute to health promotion programs and NEHC's mission?
- What role does clinical epidemiology play in managed care?
- What is the purpose and objective of the Navy's Clinical Epidemiology Program?
- What justification exists to support this program?
- What is the significance of the billet reallocation and funding for the Clinical Epidemiology Program?
- What is the structure of the NEHC Clinical Epidemiology Course?

D. SCOPE

The main thrust of the study will be to document the development of the CEP within the Navy Environmental Health Center and to examine the programmatic and financial implications of this program for Navy Medicine. A comparative analysis of funding levels for health promotion programs among the military services will be included. This analysis will focus on the period from 1992 to present. Furthermore, an examination of the implications of implementing the CEP will be conducted to determine the significance of such a program within the current environment of Navy Medicine.

E. METHODOLOGY

Data will be collected primarily through structured interviews and archival research. The techniques that will be used for both of these research strategies, as well as how the data will be gathered, are discussed below.

1. Structured Interviews

Interviews will be the primary technique used to develop information on certain programs affecting health promotion at NEHC. Interviews will be conducted in person and by telephone. Interviews will be conducted with the Commanding Officer, Director of Health Promotion and Medical Management, and Comptroller of NEHC. They will serve as a basis to document much of the development of health promotion programs and the CEP within the NEHC organization.

2. Archival Research

The techniques that will be used for archival research are historical analysis and literature reviews. Historical analysis will focus on the funding for health promotion programs within the NEHC and Army and Air Force Medicine from 1994 to 1998. A historical analysis will also be conducted on the significance of the reallocations of billets and resource dollars for the Clinical Epidemiology Program. Literature reviews will include a thorough review of current military policies, periodicals, journals, and Internet sites to ascertain the significance and implications of health promotion programs in relation to the overall health care strategy.

F. DEFINITIONS, ABBREVIATIONS, AND ACRONYMS

Definitions of certain terms are given as they arise. A list of abbreviations and acronyms is presented after the Table of Contents.

G. CHAPTER OUTLINE

Chapter I provides a general introduction to the current state of health promotion programs within the context of Navy Medicine. Chapter II provides a historical

perspective as to the evolution of health promotion programs within the private sector health care environment and defines health promotion and related components. Additionally, a health promotion model is presented, as well as the benefits of health promotion programs.

Chapter III provides an overview of the components of health promotion programs as defined by DOD, the US Navy, and Navy Medicine. It also discusses how the focus on health promotion has changed within the MHS.

Chapter IV outlines the history and program responsibilities of Navy Medicine for health promotion programs and documents the evolution of these programs within NEHC.

Chapter VI addresses the development and implementation of the CEP and how it is intended to contribute to the health promotion initiative. Particular attention is paid to the purpose and objective of the program as well as justification to support the program.

Chapter VII summarizes the results of the analysis. Additionally, the chapter provides recommendations regarding the findings and conclusions.

H. BENEFITS OF THE STUDY

This study will provide an overview of the development of health promotion programs within the NEHC and the effect these programs have on Navy Medicine. Furthermore, the findings may assist Commanding Officers of MTFs in understanding how health promotion programs and the CEP fit into the overall health care strategy so they are able to make informed decisions when determining the level of resources for these program to be used at their respective facilities.

II. OVERVIEW OF HEALTH PROMOTION COMPONENTS

This chapter will provide a basic understanding of the development of health promotion, the definition of health promotion and related components, the health promotion model, and benefits of health promotion programs. This understanding will provide the framework necessary to assess the impact and effectiveness of health promotions within the NEHC and Navy Medicine.

A. INTRODUCTION

The traditional health care system is often referred to as a "sick care system" due to the emphasis on the treatment of illness. The reason for this emphasis is two-fold. First, health care financing has historically been based on providing services for diagnosis and cure of illness, also referred to as fee-for-service. Second, some insurance programs covered services directly related to treating illness but not for providing preventive services to help patient from getting sick and maintaining a healthy state. [Ref. 8] However, with the dramatic increases in health care costs over the past two decades, health care organizations have begun to recognize that the treatment of illness and injuries without a commitment to disease prevention, health promotion and medical self-help is not beneficial to either the physical health of the patient and population or to the financial health of the organization [Ref. 9].

B. BACKGROUND

At the Thirtieth World Assembly in 1977, the attainment of health for all was accepted as the main social target of governments and the World Health Organization

(WHO) in the remaining years [Ref. 10]. This magnanimous goal led to a national effort focusing on health promotion and disease prevention which began in 1979 and continues today. Today, for the United States, two campaigns, *Healthy People 2000* and Put Prevention into Practice (PPIP), serve as the cornerstone for the attainment of health among Americans.

1. *Healthy People 2000*

In 1979, the United States Public Health Service (USPHS) laid the foundation for the present national health campaign called *Healthy People 2000*, with the first Surgeon General's *Report on Health Promotion and Disease Prevention*, also titled *Healthy People*. [Ref. 10, 11] The foreword to the report stated that its purpose is to "encourage a second public health revolution in the history of the United States...let us make no mistake about the significance of this document, it represents an emerging consensus among scientists and the health community that the Nation's health strategy must be dramatically recast to emphasize the prevention of disease." [Ref. 11] Health promotion and preventive medicine were viewed as the medical tools of intervention directed towards reducing the incidence of disease and need for health care services.

In 1980, the USPHS published *Promoting Health/Preventing Disease: Objectives for the Nation*, committing the United States to disease prevention and health promotion strategies in order to dramatically change the patterns of death, disease, and disability in the population by the year 1990. Based upon ten leading causes of death, 226 specific and measurable objectives were established and three broad working categories for 1990

were developed to include: preventive health services for individuals; health protection for population groups and health promotion for population groups. [Ref. 10, 12]

In 1990, *Healthy People 2000* was released, with a comprehensive agenda of 319 objectives organized into 22 priority areas. The priority areas, as listed in Table 2.1, were identified and grouped into four categories: health promotion, health protection, preventative services, and surveillance and data systems. [Ref. 11] The primary goals of *Healthy People 2000* are to increase years of health life, reduce disparities in health among different population groups, and broaden access to preventive health services.

According to the Department of Health and Human Services (DHSS), *Healthy People* is based on the best scientific knowledge and provides a framework for measuring performance outcomes. It is meant to be used as a strategic management tool at all levels of the government and in the private sector. Success is measured by positive changes in health status or reductions in risk factors, as well as improved provision of certain services [Ref. 11]

2. Put Prevention into Practice (PPIP)

Put Prevention into Practice (PPIP) was developed by the U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion (ODPHP), to assist in implementing *Healthy People 2000* in cooperation with major health-related voluntary groups, provider organizations, and other U.S. Public Health Service agencies. [Ref. 11] Launched in 1994, the goal of the PPIP program is to improve the delivery of clinical preventive services, including immunizations, screening

Health Promotion

1. Physical Activity and Fitness
2. Nutrition
3. Tobacco
4. Alcohol and Other Drugs
5. Family Planning
6. Mental Health and Mental Disorders
7. Violent and Abusive Behavior
8. Educational and Community-based Programs

Health Protection

9. Unintentional Injuries
10. Occupational Safety and Health
11. Environmental Health
12. Food and Drug Safety
13. Oral Health

Preventive Services

14. Maternal and Infant Health
15. Heart Disease and Stroke
16. Cancer
17. Diabetes and Chronic Disabling Conditions
18. HIV Infection
19. Sexually Transmitted Diseases
20. Immunization and Infectious Diseases
21. Clinical Preventive Services

Surveillance and Data Systems

22. Surveillance and Data Systems

Table 2.1 *Healthy People 2000* Priority Areas¹

¹ Source: U.S. Department of Health and Human Services. Public Health Services, *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*, Full Report. DHHS Pub. No. 91-5212. Washington, DC: USGPO, 1991.

tests, and counseling interventions. It is targeted toward health care providers, patients, and office and clinic staff. Today, PPIP is the only national campaign that promotes a comprehensive noncategorical approach to preventive services, covering every stage of life and addressing the major health risks of the U. S. populations. [Ref. 11]

C. DEFINING HEALTH PROMOTION AND ITS COMPONENTS

Although the concept of health promotion was first introduced during the 1970's, it is still a relatively ambiguous term. It has become increasingly fashionable in professional and political circles and is often used in a number of different ways, even by the same people. [Ref. 13] In addition, a review of the literature indicates that the term health promotion is often used interchangeably with wellness. Regardless of the interpretation of health promotion, a common thread appears to be any attempt to promote positive health within a population. Before discussing the model of health promotion, it is important to define the terms often used in conjunction with health promotion programs, including health, wellness, health promotion, prevention, the three levels of prevention, health education, and health protection.

1. Health

As defined by the World Health Organization (WHO) in 1946, health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity [Ref. 14].

2. Wellness

Wellness is a dimension of health that goes beyond the absence of disease or infirmity and includes the integration of social, mental, emotional, spiritual, and physical aspects of health. Wellness concepts were first introduced in the United States in the 1970's and refer to a positive stage of health, vice illness which refers to a negative state [Ref. 15]. Wellness tends to emphasize physical fitness, nutrition, stress management, personal safety, environmental sensitivity, health promotion, and occupational health. [Ref. 9, 17] It also focuses on the integration of a number of programs rather than just one dimension. Wellness programs may range from health education classes to the establishment full-scale fitness facilities. Basically, wellness can be any program that encourages a healthy lifestyle.

3. Health Promotion

Health promotion is the use of a combination of health education and specific interventions, such as antismoking campaigns, breast health month, and diabetes awareness, at the primary level of prevention designed to facilitate behavioral and environmental changes conducive to health enhancement [Ref. 17].

4. Prevention

Prevention is the process whereby specific action is taken to prevent or reduce the possibility of a health problem or condition developing and to minimize any damage that may have resulted from a previous condition. The three levels of prevention are primary, secondary, and tertiary. [Ref. 17, 18]

5. Primary Prevention

Primary prevention is the intervention or use of specific strategies and programs to reduce the occurrence of disease in a population. As the first level of prevention, it is aimed at deterring disease before it occurs. [Ref. 17, 18]

6. Secondary Prevention

Secondary prevention is any intervention such as case finding, screening, and treatment, intended to reduce the presence of an existing disease in a population, thereby preventing further deterioration and early death. Secondary prevention is focused on early detection and prompt treatment of disease. [Ref. 17, 18]

7. Tertiary Prevention

Tertiary Prevention is the third level or therapeutic stage of prevention and uses intervention strategies directed at assisting diseased and disabled people in a population to reduce the impact of their existing disabilities. Tertiary prevention relies more heavily on medical care and rehabilitation than on health promotion and education. [Ref 17, 18]

8. Patient Education

Patient education is any planned learning experience using a combination of teaching methods, counseling, and behavior modification techniques to influence the knowledge and health behavior of patients [Ref. 17].

9. Health Protection

Health protection involves strategies that focus on environmental rather than on behavioral determinants of health. Emphasis is given to providing a wholesome

environment with the hope of protecting the health of individuals and communities.

Health protection focuses on environmental hazards, food and drug safety, occupational health and safety, and unintentional injuries. [Ref. 17]

D. HEALTH PROMOTION MODEL

As stated previously, health promotion is any attempt to promote positive health and reduce the risk of ill health. Figure 2.1 illustrates a model of health and displays how the components of positive and ill-health interact. Downie states that, "The overall goal of health promotion may be summed up as the balanced enhancement of physical, mental and social facets of positive health, coupled with the prevention of physical, mental, and social ill health." [Ref. 13] However, the way in which this balance is achieved under the health promotion umbrella is susceptible to multiple interpretations due to the varying opinions as to what elements are included in health promotion . In order to address this issue, in 1985, Andrew Tannahill developed a model of health promotion as a framework for defining, planning, and implementing health promotion. [Ref. 13] According to the model, health promotion consists of health education, prevention, and health protection, with each sphere overlapping the other two. The model and explanation of the seven domains are illustrated in Figure 2.2 The domains are used to demonstrate the wide range of possibilities of health promotion.

E. BENEFITS OF HEALTH PROMOTION

The aim of health promotion is to help people change their lifestyles and create environments which foster positive health practices that may result in reducing the health

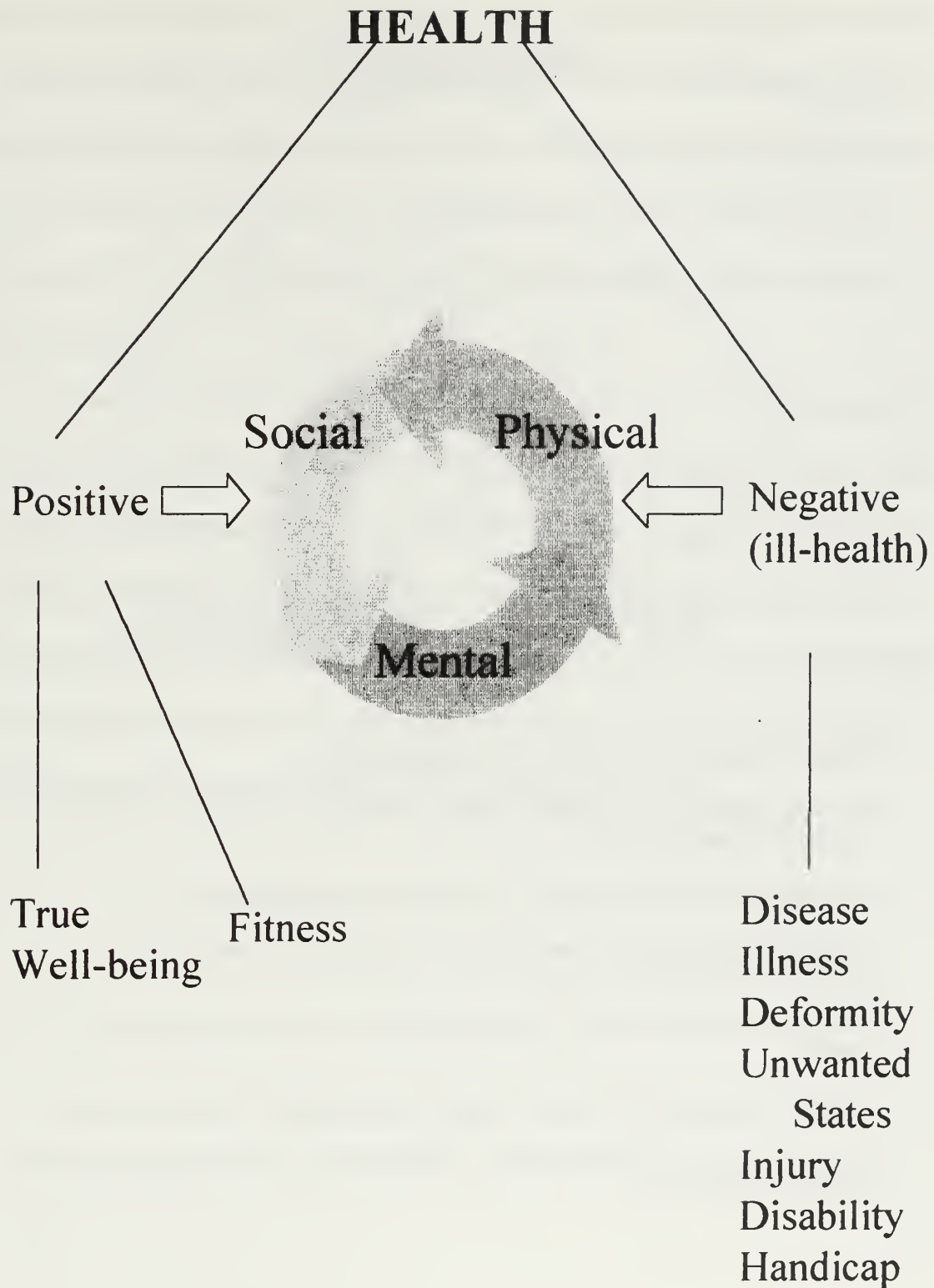
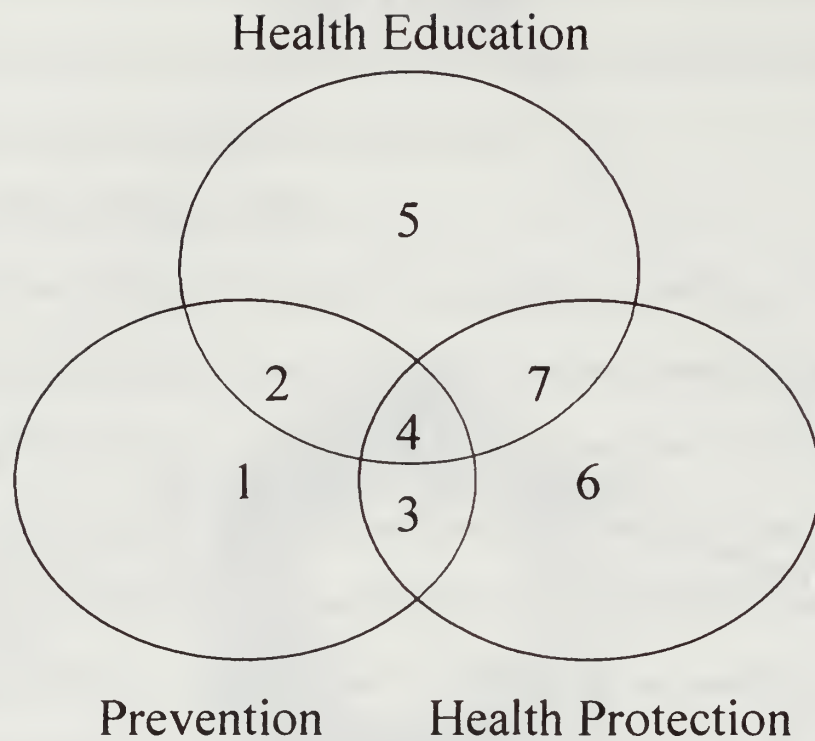


Figure 2.1 Model of Health [Ref. 13]



1--Preventive measures, e.g., immunizations, smoking cessation.

2--Includes education efforts to influence lifestyles in the interest of preventive ill-health and encourages preventive services.

3--Preventive health protection and policy commitment to preventive measures.

4--Preventive health protection through education including policy commitments to preventive health education.

5--Positive health education aimed at influencing behavior on positive health grounds, e.g., fitness.

6--Positive dimensions of health protection such as implementation of a smoke-free workplace.

7--Raising awareness of and securing support for positive health protection measures among the public and policy makers.

Figure 2.2 Health Promotion Model [Ref. 13]

risks in a population [Ref. 18]. The benefits of health promotion may include change in attitudes, increased awareness and knowledge, lowered risk for certain health problems, better health status, and improved quality of life. In traditional health care--curative care, health promotion has been seen as a way of cutting costs; however, health promotion advocates view it as justifiable on its merits alone rather than depending on economic benefits [Ref. 19].

Current research indicates that 80 percent or 1.6 million of all U.S. deaths are due to lifestyle or self inflicted health hazards. [Ref. 9] The 12 leading causes of death, listed in Table 2.2 and reported by the Center for Health Statistics, account for 90 percent of the total years of life lost by Americans and 84 percent of the cost of direct personal health care. [Ref. 9] While these statistics are staggering, it is even more remarkable that the concepts of health promotion, prevention, and wellness were first introduced in the 1970s but emphasis on these programs did not begin until the 1990s.

1. SMOKING
2. HIGH BLOOD PRESSURE
3. POOR DIET
4. LACK OF EARLY DETECTION OF ILLNESS
5. ALCOHOL ABUSE
6. SAFETY RISKS
7. ABSENCE OF MEDICAL CARE
8. NO PREVENTIVE SERVICES
9. OCCUPATIONAL HAZARDS
10. INADEQUATE HEALTH EDUCATION
11. FIREARMS
12. LACK OF FAMILY PLANNING

Table 2.2 Leading Causes of Death²

² Source: National Center for Health Statistics, U.S. Public Health Service, DHHS

III. MILITARY HEALTH PROMOTION PROGRAMS

This chapter will provide an overview of the components of health promotion programs as defined by the DOD, the United States (US) Navy, and Navy Medicine. It also demonstrates the extent to which health promotion principles are involved in the accomplishment of missions and objectives in the DOD through a discussion of the MHS, Navy Medical Department Strategic Plan, medical readiness mission requirements, and compliance with national objectives.

A. INTRODUCTION

The DOD operates one of the largest health care systems in the world, with more than eight million eligible beneficiaries, and accounts for six percent of the total defense budget.³ [Ref. 1, 20] Unlike private sector health care, the MHS operates under a dual mission to provide both wartime and peacetime health care delivery (Figure 3.1). The wartime mission of the MHS focuses on an operational health care system designed to provide care to active duty military personnel in preparation for and during wartime or other contingencies. The peacetime mission is an alternative health care system designed to provide care at MTFs and civilian facilities under the TRICARE program for all eligible beneficiaries.

Although the mission of the MHS may be unique, it has faced the same challenges as the private sector in managing steadily rising health care costs. Over the past decade, the MHS has undergone drastic changes in the delivery of health care. The implementation of TRICARE in 1993 and movement towards the managed care concept

³ Eligible beneficiaries include active duty military, retirees, and their families.

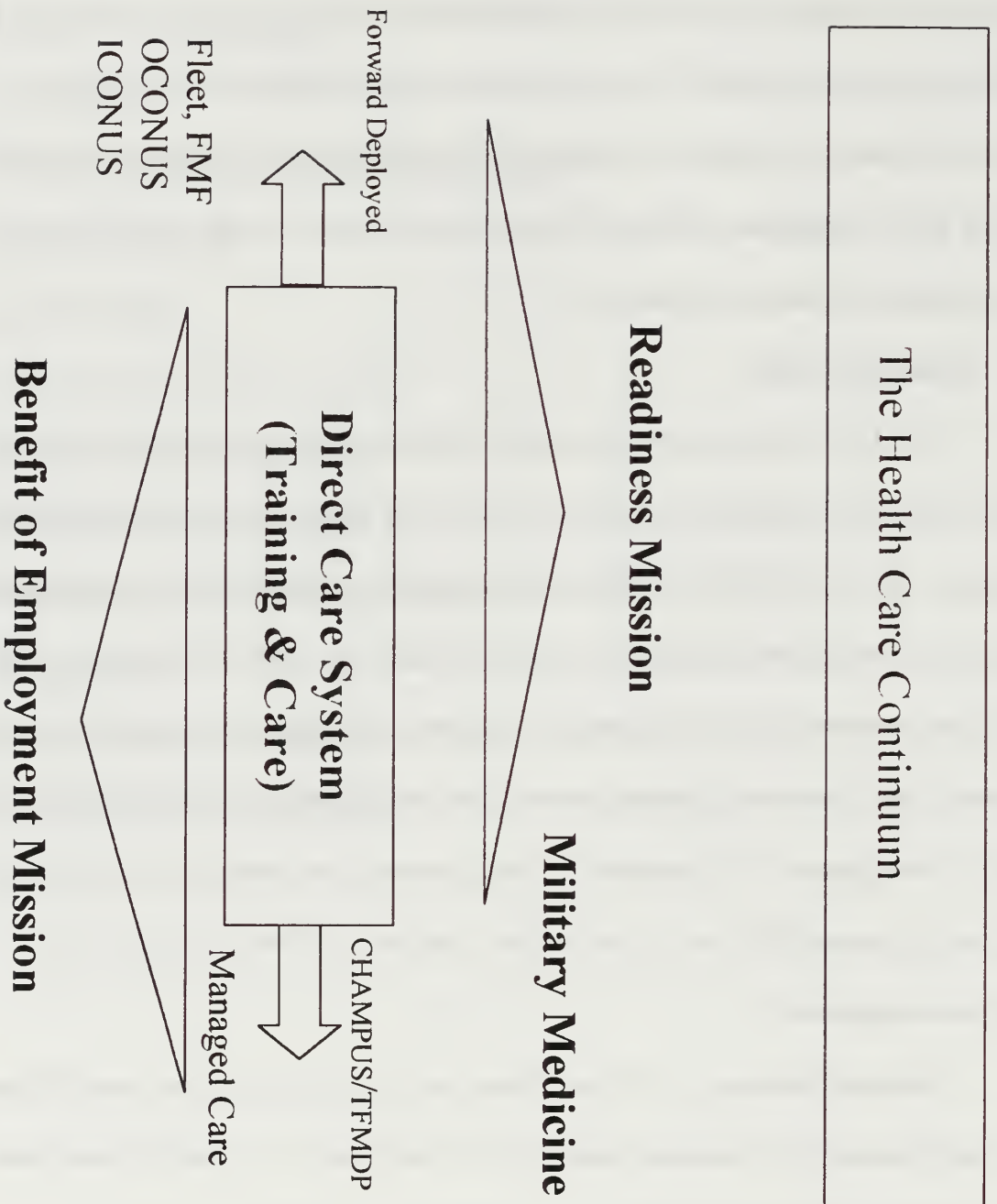


Figure 3.1 Military Health System Dual Mission⁴

⁴ Source: N931

and EBC have resulted in a paradigm shift from traditional acute care and curative services to services that manage the eligible population. This shift provides financial incentives to deliver health care in a more efficient and effective manner, including programs that promote positive health, such as health promotion, preventive care, and wellness.

B. BACKGROUND

As part of the national movement to change unhealthy lifestyles, the DOD established a health promotion policy in March 1986 to, "improve and maintain military readiness and quality of life of DOD personnel beneficiaries." [Ref. 2, 3] Although the policy required immediate implementation, it was not until the 1990s that DOD components began to play an active role in promoting health. [Ref. 21, 22, 23, 24, 25, 26,27] The establishment of health promotion programs in the Navy is summarized in Table 3.1.

The Navy policy and Navy Medicine policy, released in 1992, define health promotion similarly to DOD and the purpose of each follow the guidelines set forth by DOD.⁵ However, the components among the three policies differ and are illustrated in Table 3.2. [Ref. 2, 21, 23] A discussion of the DOD policy, Navy policy, and Navy Medicine policy follows.

1. DOD Health Promotion Policy

The DOD health promotion policy, DOD Directive 1010.10, dated March 11,

⁵ A review of military policy documents, interviews, papers, etc. indicates that there is no clear definition of wellness and that the principles of health promotion are often used interchangeably with the wellness concept.

| | | | |
|-------------------|---|--|----------------------------|
| March 11, 1986 | Department of Defense | Health Promotion Policy | DOD Directive 1010.10 |
| January 6, 1992 | Naval Medical Department | Health Promotion Program | BUMEDINST 6100.13 |
| February 14, 1992 | Office of Civilian Personnel and Management | Employee Health Promotion and Wellness Program | OCPMINST 12792.4 |
| February 25, 1992 | US Navy | Health Promotion Program | OPNAVINST 6100.2 |
| May 1992 | United States Marine Corps | Health Promotion Program: Semper Fit | MCO 6200.4 |
| January 6, 1994 | Commander Naval Surface Force US Atlantic Fleet | Health and Wellness Program | COMNAVVSURFLANTINST 6100.1 |
| December 11, 1995 | Commander Naval Air Force US Atlantic Fleet | Health Promotion Program | COMNAVVAIRLANTINST 6100.2 |
| February 5, 1996 | Commander in Chief US Naval Forces Europe | Health Promotion Program | CINCUSNAVEURINST 6100.1 |

Table 3.1 Navy Health Promotion Program Development⁶

⁶ MCO 6200.4 was replaced by MCO 6200.4A, dated April 7, 1997.

| | |
|---|--|
| <p>Department of Defense March 11, 1986</p> <ol style="list-style-type: none"> 1 Smoking Prevention and Cessation 2. Physical Fitness 3 Nutrition 4 Stress Management 5 Alcohol and Drug Abuse Prevention 6 Early Detection of Hypertension | |
| <p>Navy Medicine January 6, 1992</p> <ol style="list-style-type: none"> 1 Traditional Health Promotion <ul style="list-style-type: none"> *Nutrition *Physical Fitness *Tobacco Cessation *Stress Management *Alcohol and Drug Abuse Prevention 2 Health Protection <ul style="list-style-type: none"> *Environmental Health *Occupational Health *Injury Control 3 Preventive Services <ul style="list-style-type: none"> *Maternal and Child Health *Immunization *Sexually Transmitted Disease (STD) *Human Immunodeficiency Virus (HIV) *Cholesterol and Hypertension Screening and Control *Cancer Detection and Treatment *Mental Health 4 System Requirements <ul style="list-style-type: none"> *General Health Education and Preventive Services *Surveillance *Data Systems | |
| <p>U S Navy February 25, 1992</p> <ol style="list-style-type: none"> 1. Physical Fitness and Sports 2. Tobacco Use Prevention and Cessation 3 Nutrition Education and Weight/Fat Control 4. Alcohol and Drug Abuse Prevention and Control 5 Back Injury Prevention 6. Early Identification and Control of Hypertension 7 Stress Management and Suicide Prevention | |

Table 3.2 Comparison of Military Health Promotion Program Components

1986, targets military personnel and retirees, their families, and civilian employees. [Ref. 2] It defines health promotion as, "Any combination of health education and related organizational, social, economic, or health care interventions designed to facilitate behavioral and environmental alterations that will improve or protect health. It includes those activities intended to support and influence individuals in managing their own health through lifestyle decisions and selfcare." [Ref. 2] Operationally, health promotion programs include smoking prevention and cessation, physical fitness, nutrition, stress management, alcohol and drug abuse prevention, and early detection of hypertension.

The DOD policy applies to the Office of the Secretary of Defense (OSD) , the Military Departments, and the Defense Agencies. [Ref. 2] It delineates specific responsibilities for execution and coordination of the health promotion program to the Assistant Secretary of Defense for Health Affairs (ASD (HA)), the Under Secretary of Defense for Personnel and Readiness (USD(P&R)), the Assistant Secretary of Defense for Reserve Affairs (ASD(RA)), the Secretaries of the Military Departments, the Directors of Defense Agencies, and the Comptroller of the DOD (C, DOD). The policy requires each Military Service to establish a health promotion program and to integrate the respective programs with medical and personnel departments. It requires the health promotion plans and programs to include the components of operational health promotion programs, as described above, and provides specific guidance for implementation of each of those components.

2. Navy Health Promotion Policy

The US Navy Instruction (OPNAVINST) 6100.2, dated February 25, 1992, outlines the Navy's health promotion program policy, as required by DOD Instruction 1010.10. [Ref. 23] The purpose of the instruction is to, "Establish a comprehensive Navy Health Promotion Program that encourages healthy lifestyles and increases operational and individual readiness." [Ref. 23] The Navy's definition of health promotion is similar to the DOD definition; however, the operational components of health promotion are expanded by the Navy. [Ref 2, 23] The Navy includes the following elements as part of health promotion programs: physical fitness and sports; tobacco use prevention and cessation; nutrition education and weight/fat control; alcohol and drug abuse prevention and control; back injury prevention; early identification and control of hypertension; and stress management and suicide prevention.

The Navy health promotion policy applies to all Navy personnel, active, reserve and civilian. [Ref. 23] It requires commanders, commanding officers, and officers in charge to establish and maintain effective health promotion programs. Additionally, the policy delineates program action and responsibilities among several organizations throughout the Department of the Navy (DON).

The Navy policy requires the Chief, Bureau of Medicine and Surgery (CHBUMED) to ensure that a Health Promotion Program Officer is appointed at each MTF in order to assist local commands in developing, implementing and promoting health promotion programs. [Ref. 23] Navy Medicines serves as the focal point of

integration of the components of health promotion. The policy also requires CHBUMED to provide support for the program at all echelon levels and specifies responsibilities for each of the health promotion program components as described above.

3. Navy Medicine Health Promotion Policy

Bureau of Medicine and Surgery Instruction (BUMEDINST) 6110.13, dated January 6, 1992, provides policy and guidelines for the Naval Medical Department Health Promotion Program. [Ref. 21] Navy Medicine defines health promotion as, "the combination of health education plus related organizational, social, economic, and health care interventions designed to improve or protect health." [Ref. 21] The goal of the program is to, "improve and maintain the highest levels of unit readiness, concentrating on increased individual fitness by identifying and minimizing health risks and disabilities."

Navy Medicine's definition of health promotion and the goal of the program is somewhat similar to that of DOD and to the Navy. However, Navy Medicine's health promotion components are much more comprehensive and include traditional health promotion, health protection, preventive services, and system improvements. [Ref. 21] These components, illustrated in Figure 3.2, are closely related to the Health Promotion Model discussed in Chapter II, which included health education; prevention; and health protection. The elements of Navy Medicine health promotion model components are described below. [Ref. 21]

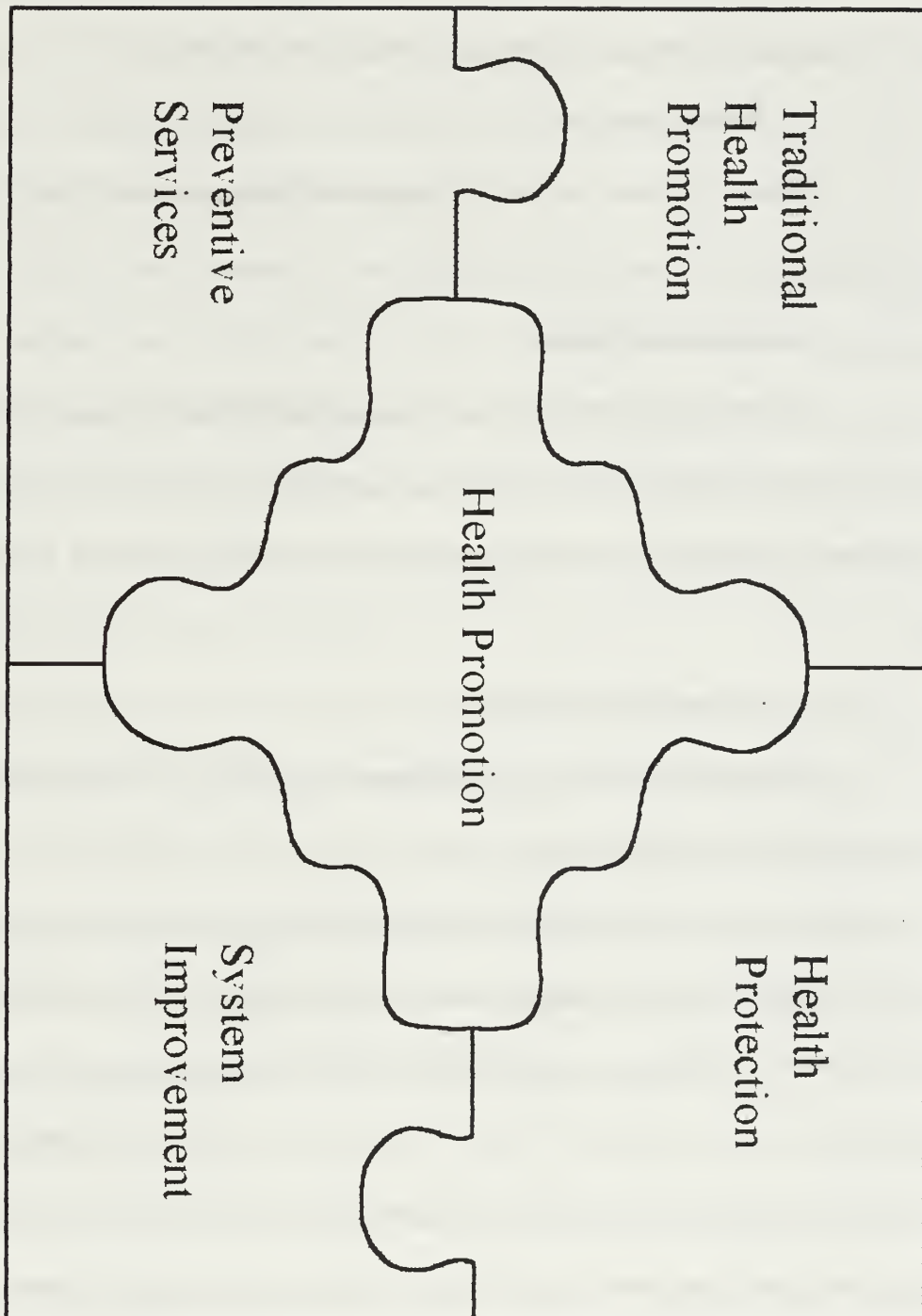


Figure 3.2 Naval Medical Department Health Promotion Program Components

a. Traditional Health Promotion

Traditional health promotion includes nutrition, physical fitness, tobacco cessation, stress management, and alcohol and drug abuse prevention.

b. Health Protection

Health protection includes environmental and occupational health, and injury control.

c. Preventive Services

Preventive services address maternal and child health, immunization, sexually transmitted disease (STD), human immunodeficiency virus (HIV), cholesterol and hypertension screening and control, cancer detection and treatment, and mental health.

d. System Improvements

System improvements include general health education and preventive services, surveillance, and data systems.

In order to carry out its policy as the primary consultant for the Navy and Marine Corps, the Navy Medicine policy assigns specific responsibility to: the CHBUMED; Commanding Officer, NEHC as a representative of BUMED; and all commanders, commanding officers, and officers in charge.⁷ Additionally, guiding principles and practices for an effective health promotion program are outlined by the policy. These principles and practices are provided in Table 3.3. [Ref. 20] According to these

⁷ NEHCs health promotion program responsibilities are discussed in Chapter IV.

principles and practices, the effectiveness of health promotion programs can be measured through a scientifically based model, which focuses on the health status of the population. It also introduces the concept of using epidemiology as a method to scientifically evaluate and improve the health status of the population.⁸

C. MILITARY HEALTH SYSTEM (MHS)

The MHS exists to ensure the availability of healthy and fit military personnel to meet the readiness mission. [Ref. 16] The focus of the MHS is on maintaining a healthy force, ensuring an environment that sustains health, and providing trauma care in battle to meet the readiness mission. As illustrated in Figure 3.1, the MHS also has to fulfill a peacetime role through the direct care system in support of the health care needs of the total eligible population. [Ref 1, 20, 28]

Strategic planning has been used to assist DOD and service medical leaders in fulfilling the dual role and adapting to managed care in an environment of limited resources. MHS strategic planning efforts reflect the need to change the organizational culture from curative care to health promotion and wellness. [Ref. 16] The MHS 2020 and MHS Strategic Plan address the future direction of the MHS in the long-term (25 year outlook) and short-term (five to seven year outlook), respectively.

1. MHS 2020

The initial development of the MHS 2020 initiative, Envisioning Tomorrow to Focus Today's Resources, began in Fiscal Year 1996 and was a one-year effort involving over 200 military and private sector health care professionals to forecast the future

⁸ The concept of epidemiology is discussed in Chapter IV.

1. Effective health promotion programs need to demonstrate the actual ability to reduce the burden of disease, injury and disability within the community. This can be accomplished by implementing a measurable, scientifically based model of health promotion. **This model views health promotions as the scientific assessment and improvement of the health status of specific populations within the overall community.**
2. **The foundation of this approach lies in the concept of a spectrum of illness contained in the preventive medicine model of disease.** This concept views the course of an illness as passing from wellness to disability and death through a series of phases. The onset of disease is caused by exposure of a healthy person in the susceptible phase to one or several risk factors for disease. The individual then passes through preclinical, clinical, and disability phases. Transitions between phases are marked by the development of symptoms and the diagnosis of the illness where treatment is initiated.
3. **The goal of health promotion is preventing avoidable illness and injury. The task of health promotion then is to reduce the impact of disease and injury on the population by eliminating individuals' exposure to the risk factors for illness.**
4. **The scientific evaluation and improvement of the health status of the United States (U.S.) Navy and Marine Corps community begins with epidemiological studies of the incidence of diseases within the community.** The diseases which pose the greatest burden on the quality of life, cause the greatest reduction in productivity, and place the largest demands on available resources must receive the focus on the Naval Medical Department's attention.
5. Health promotion initiatives will expand from concentrating on a few diseases to include programs directed toward those **population specific risk factors** which have been demonstrated to place the greatest burden on beneficiaries. **Using epidemiological methods and statistical quality control techniques, health promotion initiatives must be targeted at the leading cause of morbidity and lost productivity.**⁹

Table 3.3 Effective Health Promotion Programs: Guiding Principles and Practices¹⁰

⁹ Morbidity is a departure from a state of health and well being [Ref. 17]

¹⁰ Source: BUMEDINST 6110.13, Naval Medical Department Health Promotion Program, Enclosure (1), January 6, 1992.

direction of the MHS over a 25-year period.¹¹ [Ref. 7, 29] The objectives of this initiative were to: envision health care practices and delivery into the year 2020; allow the MHS to synthesize future healthcare directions; train health care futurists; and develop usable models of the health care system. [Ref. 7] The resulting efforts were four possible future scenarios for the MHS. The group then addressed short-term steps which could be taken to direct the MHS into a preferred future state.

MHS 2020 also involved development of what it termed "audacious" goals, recommendations for changes in the MHS Strategic Plan, and 1998 Priority Actions. [Ref. 7]

a. Audacious Goals (Partial List)

- By 2005, prevention, self-managed care, telemedicine, and outpatient care reduce facility requirements by 50 percent.
- By 2005, MHS spending for preventative and "partnered/self-managed" care is increased from 1 percent of the MHS budget to 50 percent.
- By 2005, the primary care usage rate is reduced by 75 percent.
- By 2010, partnered self-managed care causes one-third reduction of costs per person, per year.

b. Recommended Changes in MHS Strategic Plan

- Recognize medical resources as a fundamental asset for achieving national objectives.

¹¹ MHS 2020 is an ongoing effort to develop long term visions and strategic requirements and is updated as necessary. It is currently in its third year.

- Integrate health promotion more clearly into readiness, Health Operations Other Than War (HOOTW), and day-to-day care.
- Centralize HOOTW as a function of the MHS.
- Nurture a process that fosters personal capacity to relate alternative futures and vision to strategies.
- Design disease out of the Armed Forces and society.

c. 1998 Priority Actions (Partial List)

- Make aspects of health promotion, wellness, self-care, and healthy communities, THE military medical mission--receiving an appropriate first priority budget, a dedicated slice of capital funding, people, space, and leader emphasis.
- Promulgate HOOTW as one of the primary readiness tools for advancing national policy, such that HOOTW operations become promoted, have a doctrine, and are appropriately resourced for personnel, training, and equipment.

2. MHS Strategic Plan

The foreword of the MHS Strategic Plan, endorsed by the ASD(HA) and the Surgeons General of the services, states:

The MHS is positioned to be the benchmark health care delivery system of the 21st Century, emphasizing readiness, health promotion, and managed care for all Armed Forces Personnel and others entitled to our care. The development of this strategic plan demonstrates the commitment of our Tri-Service teams to jointly face the challenges inherent in our changing roles and mission as well as those being brought on by revolutionary changes within the health care community. [Ref. 29]

The MHS Strategic Plan contains six goals: Joint Medical Readiness; Benchmark Health System; Healthy Communities; Resources and Structure; Training and Skills Development; and Technology Integration. [Ref. 29] Throughout the development of the strategic plan, the workgroup focused on key issues of readiness; wellness versus illness; managed care growth; changes in medical care focus from specialty to primary care; technology and business process improvements; changes identified in mission; change in resourcing focus; and health and fitness. Attainment of the first three strategic goals addresses the essential need for active and effective health promotion, prevention, and wellness programs.

D. NAVY MEDICAL DEPARTMENT STRATEGIC PLAN

The mission of the Navy Medical Department is to ensure the health of Sailors and Marines in order to meet the military readiness mission through a comprehensive health promotion program and health care plan for the restoration of optimal health. [Ref. 30,31] The strategic goals of the Navy Medical Department include: Readiness; People; Technology; Stewardship; and Health Benefit. Like the MHS 2020 and MHS Strategic Plan, Navy Medicine's strategies emphasize health promotion principles as a vital component in goal attainment. Additionally, Navy Medicine's strategic plan defines performance indicators for each goal. For example, performance indicators for the readiness goal focus on health promotion and prevention measures and appropriate and timely medical care, and health benefits performance indicators aim at reducing lost work days due to preventable diseases and unhealthy lifestyles.

E. READINESS

Medical readiness is, officially, the number one priority of the MHS and the Navy Medical Department. [Ref. 16, 20, 28, 29, 30, 31,32] Components of health promotion programs play a large role in ensuring the readiness of military personnel during wartime and peacetime. The Medical Readiness Strategic Plan (MRSP), Force Health Protection (FHP), and Joint Medical Surveillance are just three examples of how the MHS implements health promotion programs to achieve its readiness mission.

1. Medical Readiness Strategic Plan

The Medical Readiness Strategic Plan (MRSP) was first published in 1988 in response to a congressional mandate to restructure the medical readiness system. [Ref. 32] The latest document, MRSP 2004, supports the Chairman of the Joint Chiefs of Staff (CJCS) Joint Vision 2010 and provides for a healthy, fit, and medically ready force.¹² The components of MRSP include Healthy and Fit Force; Casualty Prevention; and Force Health Protection. [Ref. 16, 32]

a. Healthy and Fit Force

This component of the MRSP involves promoting health and ensuring quality of life to strengthen personnel against disease and injury through wellness programs, including physical fitness, health promotion, and occupational health.

¹² This is the second revision to the MRSP and reflects the most recent changes to the US National Military Strategy (NMS).

b. Casualty Prevention

Casualty prevention focuses on the enemy threat and health threat. The enemy threat is any threat which produces casualties, and the health threat is any threat which produces disease and nonbattle injury (DNBI) casualties. Comprehensive medical intelligence collections systems, continuous medical surveillance, uniform counter measures and immunization policies are used to counter the health threat.

c. Casualty Care and Management

Casualty care and management deploys smaller, mobile, and capable units to provide essential care in theater. The major elements are first response, forward resuscitative surgery, tailorable hospital care, and enroute care. [Ref. 16,32]

2. Force Health Protection (FHP)

In November 1997, President Clinton directed the DOD and Veteran's Administration (VA) to create a new Force Health Protection (FHP) program. [Ref. 8, 32] The FHP builds on the National Military Strategy (NMS) and CJCS Joint Vision 2010 and reflects lessons learned as a result of the Gulf War. The primary focus, illustrated in Figure 3.3, is on protection of military personnel and includes protection, monitoring and management throughout a military member's service. [Ref. 16, 32] FHP uses technology to monitor and protect deployed forces; surveys, serum collection and other tests to collect health information before and after deployments; immunizations to meet environmental and enemy biological threats; and protective clothing and other gear to protect against harmful agents. [Ref. 32]

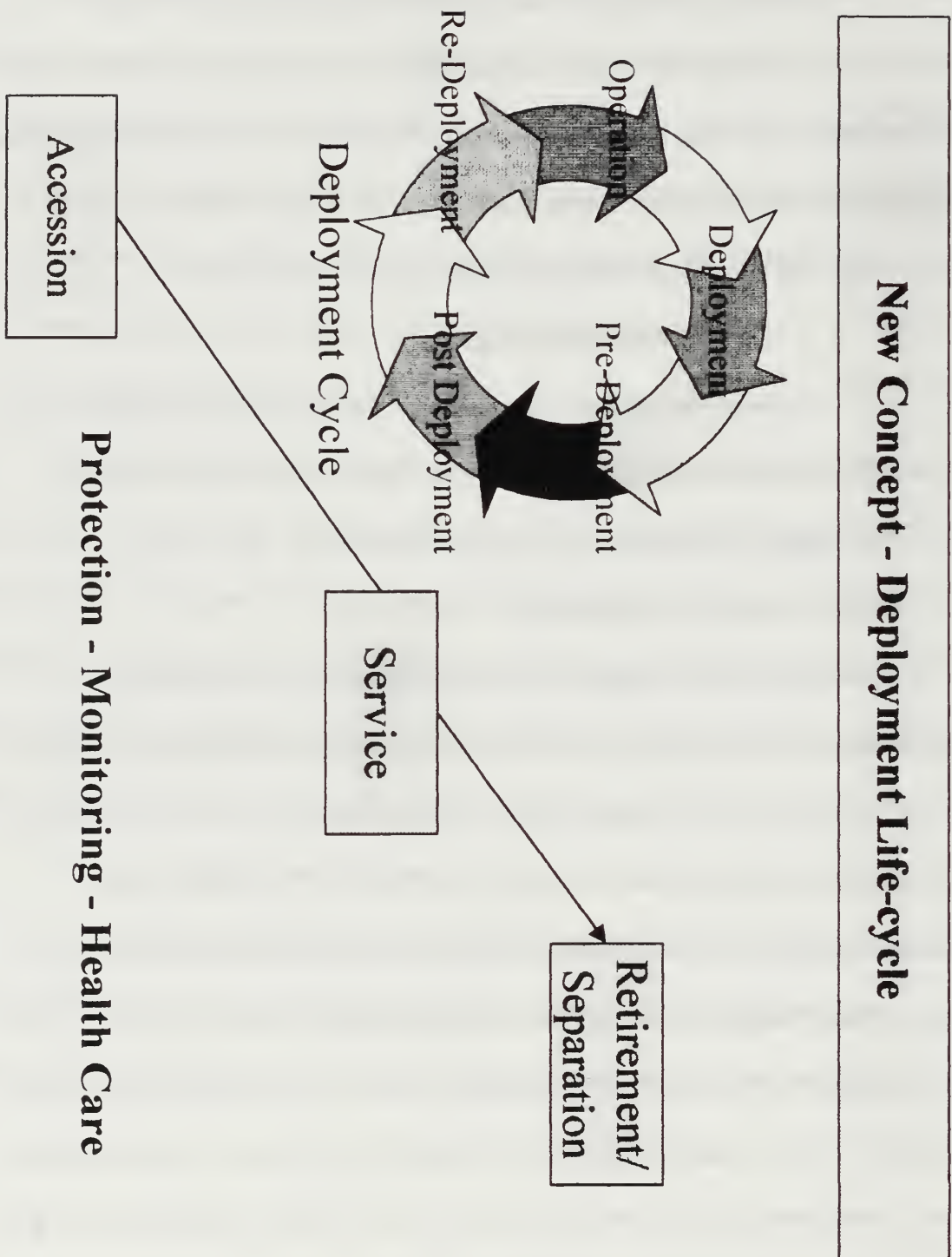


Figure 3.3 Focus on Force Health Protection

The Navy's version of FHP, Naval Force Health Protection for the 21st Century (NFHP-21), aligns the NMS, Joint Vision 2010, the Navy's Forward from the Sea, and Marine Corps Operational Manuever from the Sea in accomplishing the overall goals of FHP. [Ref. 34] Figure 3.4 reflects the pillars of the NFHP-21 and illustrates the integration of the FHP with the MRSP.

3. Joint Medical Surveillance

DOD Directive 6490.2, Joint Medical Surveillance (JMS), establishes policy for routine joint medical surveillance of all military service members during active service, including Reserve components, and emphasizes surveillance before, during, and after deployments. [Ref. 35,36] Medical surveillance is "The regular or repeated collection, analysis, and dissemination of uniform health information for monitoring the health of a population, and intervening in a timely manner when necessary." [Ref. 35] Although JMS is a program in and of itself, it is an important element in the accomplishment of the MRSP and FHP. It is a tool for ensuring a healthy and fit force and preventing illness, disease and injuries in order for the military services to maintain mission effectiveness and warfighting capabilities. [Ref. 36]

Health promotion and prevention efforts are vital components in the implementation of the JMS. Among the many procedures for implementation of the JMS is the integration of health promotion, medical surveillance, and prevention efforts. Integration allows for monitoring of service members, before and after deployment, to ensure healthy and fit behaviors are maintained and advocated. During deployment,

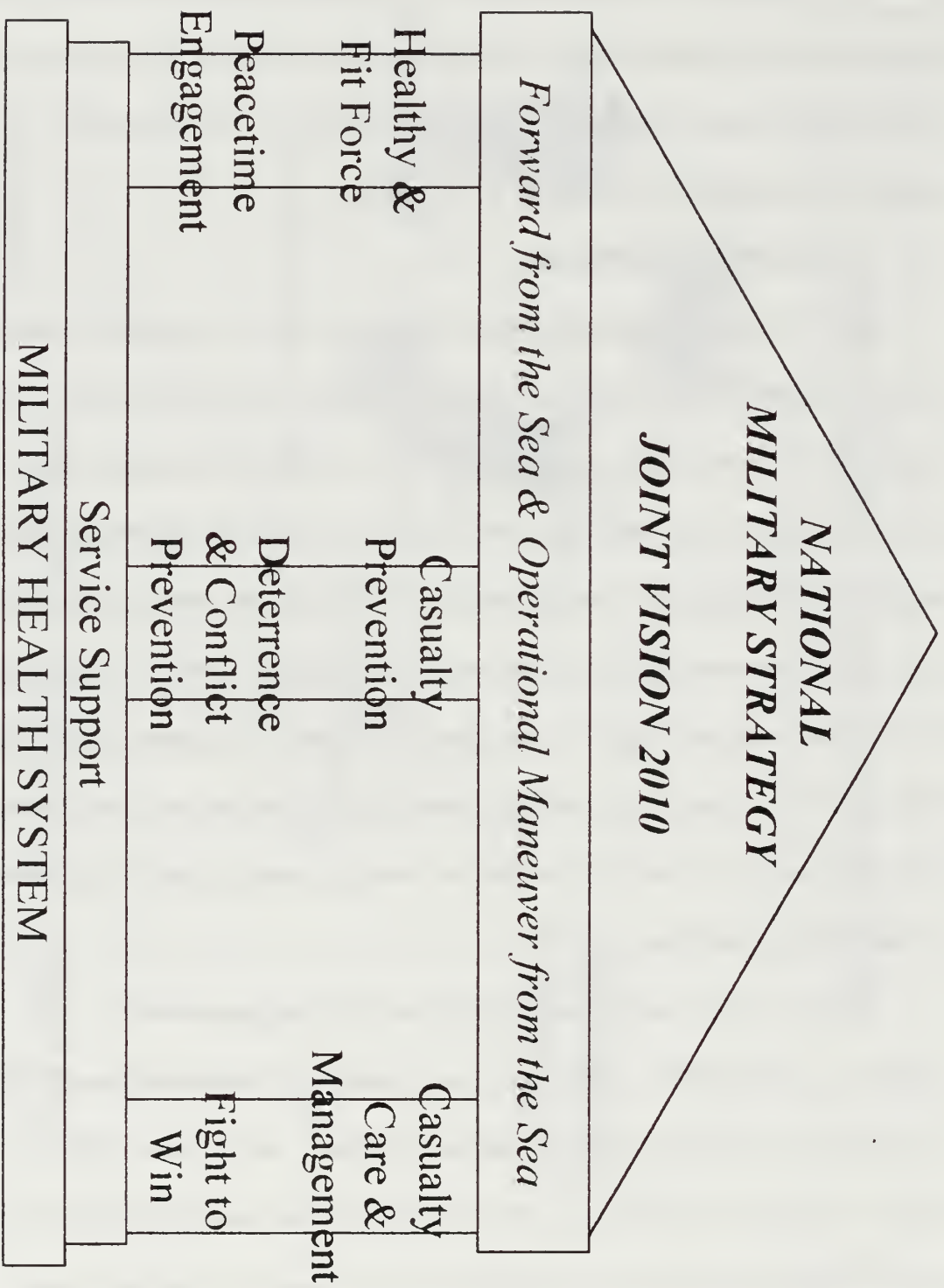


Figure 3.4 Pillars of Naval Force Health Protection for the 21st Century [Ref. 34]

integration provides deploying units the appropriate information on potential health related threats so that countermeasures, such as medical prophylaxis, immunization and other unit and individual practices, may be used to minimize risks. [Ref. 35, 36]

F. NATIONAL OBJECTIVES

The national campaigns, *Healthy People 2000* and Put Prevention into Practice (PPIP), discussed in Chapter II, emphasize health promotion and prevention programs as a fundamental part of health care delivery. [Ref. 11, 12] Following the publication of *Healthy People 2000* in 1990, Congress directed DOD to develop a plan to implement the national objectives. [Ref. 37, 38] Of the 383 DHHS objectives, 181 objectives were adopted by DOD. [Ref. 38]

In March 1998, the ASD(HA) tasked all military hospitals and clinics to implement PPIP by April 1999. [Ref. 39] The implementation of PPIP involves an annual Health Enrollment and Assessment Review (HEAR) survey of all eligible beneficiaries. The HEAR will allow providers to identify health risk factors; target areas of improvement; and monitor immunizations and preventive screenings. [Ref. 39, 40] PPIP supports the movement of the MHS focus from curative care to health promotion and wellness prevention of illness or injuries.

G. SUMMARY OF CHAPTER III

The initial requirement for development of health promotion programs in the military was delineated by the DOD in March 1986, following increasing interest in the national campaign *Healthy People*. The requirements for health promotion programs, as

set forth by the DOD, were minimal and were not strongly enforced. Although all of the components of the DOD Health Promotion Program were being performed by the Navy Medical Department to some degree, a formal program was not established until 1992. The Navy Medical Department's health promotion policy involves a comprehensive program and is comparable to the private sector Health Promotion Model.

In the past six years, the principles of health promotion programs have become an integral part of the MHS and Navy Medicine in mission accomplishment, strategic development and implementation, and medical readiness. The population-based focus of managed care, as well as resource limitations and demands to not only meet, but exceed, medical readiness requirements, have forced the MHS to rapidly change to meet the demands of the internal and external MHS customers. The MHS appears to be meeting these demands by shifting from a individual patient curative care approach to a population based health approach utilizing health promotion, prevention and wellness as the foundation.

IV. NAVY MEDICINE HEALTH PROMOTION PROGRAM

This chapter will provide an overview of the history and program responsibilities of the CHBUMED for health promotion. It will also document the evolution of the health promotion mission of the Navy Environmental Health Center (NEHC), particularly its role as Program Manager for health promotion.

A. INTRODUCTION

The DON health promotion policy, dated February 1992 and discussed in Chapter III, tasked the CHBUMED to be the focal point for health promotion and to ensure that a Health Promotion Program Officer was appointed at each MTF in order to assist local commands in developing, implementing, and promoting health promotion programs.

[Ref. 23] The CHBUMED was also tasked with developing, implementing, and updating strategic goals and objectives for the health promotion program; acting as the primary consultant and point of contact for all health promotion programs in the US Navy and Marine Corps; and serving as a role model for developing and evaluating effective health promotion programs. [Ref. 41]

Navy Medicine complied with the DON tasking, but the degree of compliance varied throughout the organization. MTFs were not given additional funding for health promotion efforts nor were they provided with additional personnel to fill the position of a Health Promotion Program Officer. [Ref. 42, 43] The position was often labeled a collateral duty and was filled by someone who may or may not have had prior health promotion, prevention, or wellness experience or training.

Over the next few years, the focus on health promotion and wellness continued to increase throughout DOD. Navy Medicine also recognized the need for a more standardized program among MTFs. In December 1994, the CHBUMED designated the NEHC as the Program Manager for Health Promotion activities for BUMED and funding for health promotion followed. [Ref. 42, 44]

B. DON HEALTH PROMOTION ORGANIZATION

Figure 4.1 illustrates the organizational structure for the health promotion program within the DON. [Ref. 41] The Bureau of Naval Personnel (BUPERS) Code 60, Drug/Alcohol, Fitness, Education and Partnerships Division, is primarily responsible for policy administration for the health promotion program within the DON. On the other hand, Navy Medicine is responsible for program administration and content of the health promotion program within the DON.

BUMED, Code 02, Operational Medicine and Fleet Support, is headed by a Captain, O-6, who is solely responsible for oversight of the program within Navy Medicine, including policy development. [Ref. 43] NEHC, as Navy Medicine's health promotion representative, formally reports to Code 02 as the Health Promotion Program Manager and has a quasi "formal" relationship with the Health Promotion Coordinator at the MTF level. Additionally, BUPERS, BUMED and NEHC work together to mesh health promotion policy with actual program administration and implementation within DON.

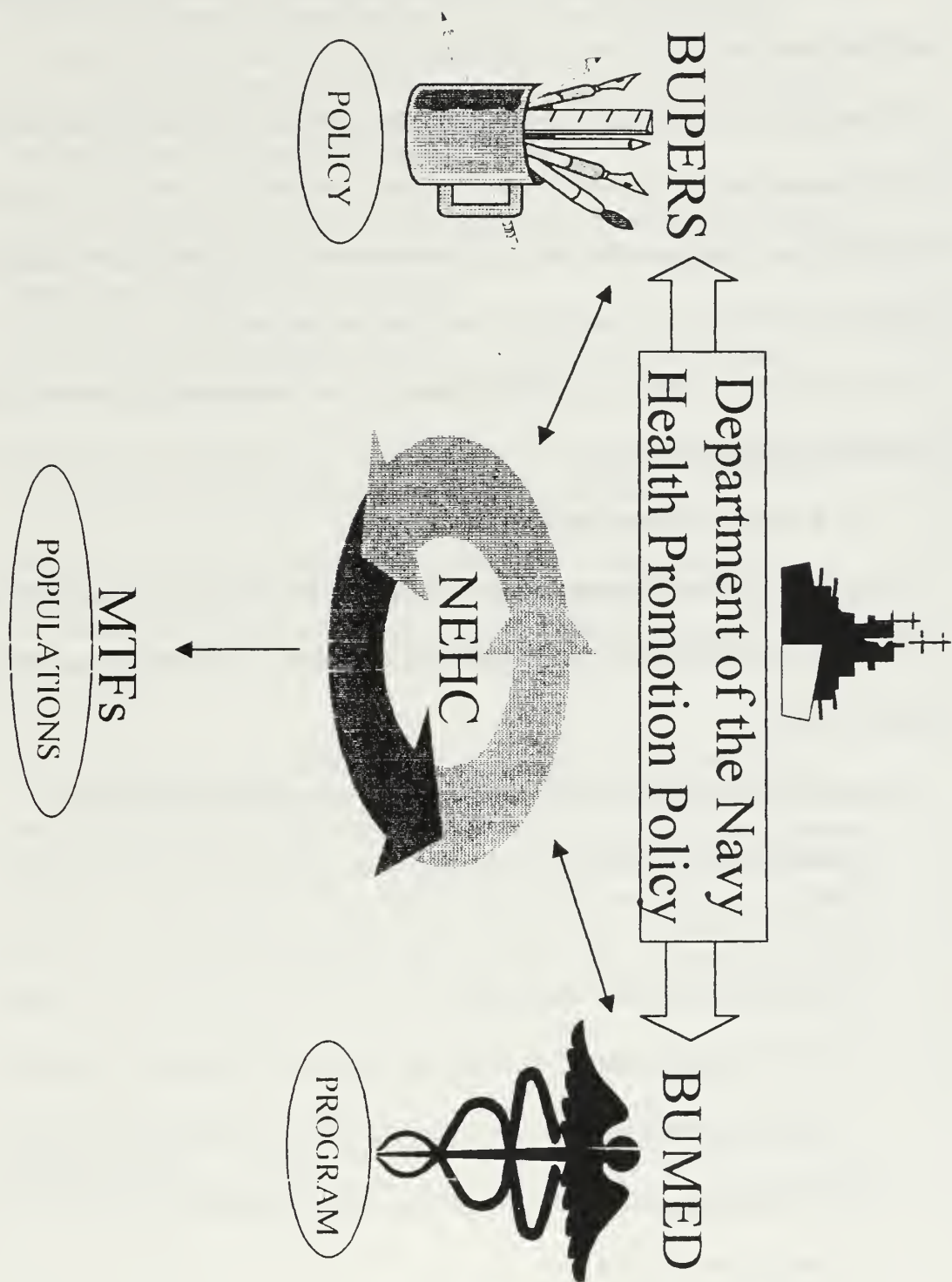


Figure 4.1 Department of the Navy Health Promotion Organization [Ref. 41]

C. NAVY ENVIRONMENTAL HEALTH CENTER (NEHC)

In 1964, the Navy Bureau of Weapons recognized the need for an occupational health program that would address all fleet readiness and training ordnance field activities. [Ref. 6] At the direction of the Bureau of Weapons, the Commanding Officer, Naval Ammunition Depot (NAD), Crane, Indiana, expanded the command's occupational health function. This expansion led to the eventual creation of the Navy Environmental Health Center (NEHC) and transfer of overall program responsibility to BUMED in 1971. A discussion of NEHC's program responsibilities, mission, and population-based approach to health care follows.

1. Program Responsibilities

Table 4.1 reflects the organizational changes that have taken place at NEHC since 1964. [Ref. 6, 44, 45] NEHC's responsibilities have steadily expanded since its inception and now include:

- Navy Occupational Safety and Health Inspection Program (NOSHIP)
- analytical lab services
- radiation health
- hazardous materials identification
- asbestos hazard control
- preventive medicine
- epidemiology
- hearing conservation

| | |
|------|--|
| 1964 | The Navy Bureau of Weapons tasked the Naval Ammunition Depot (NAD), Crane, Indiana to broaden their occupational health function. |
| 1967 | The Bureau of Weapons formalized the Crane program by establishing the Naval Ordnance Systems Command Environmental Health Center under the control of the NAD Crane Medical Department. |
| 1970 | The Center became a Headquarters Detachment of Naval Ordnance System Command (NAVORD). The Center was renamed Naval Ordnance Environmental Health Center (NOEHC) |
| 1971 | BUMED took responsibility for NOEHC. NOEHC was renamed Navy Industrial Environmental Health Center (NIEHC). |
| 1974 | NIEHC became an echelon 3 shore activity under the CHBUMED and was renamed the Navy Environmental Health Center (NEHC). |
| 1978 | NEHC was relocated to Norfolk, Virginia. NEHC's role expanded to include the Navy Occupational Safety and Health Inspection Program (NOSHIP), analytical laboratory services, radiation health, hazardous material identification, asbestos hazard control, preventive medicine, epidemiology, and hearing conservation. |
| 1981 | NEHC's mission was expanded to include coordination and provision of centralized support for occupational health, environmental health, and preventive medicine services to medical activities ashore and afloat. The Navy Disease Vector Ecology and Control Centers and Navy Environmental and Preventive Medicine Units (NEPMU) were placed under NEHC as echelon 4 commands. |
| 1990 | NEHC was assigned management responsibility for the Navy Drug Screening Labs. |
| 1994 | NEHC was designated as program manager for Health Promotion. |
| 1998 | NEHC was designated as project manager for the Clinical Epidemiology Program (CEP). |

Table 4.1 Navy Environmental Health Center Organizational Changes, 1964 to 1998

- coordination and centralized support of occupational health, environmental health, and preventive services to medical activities ashore and afloat
- Navy Disease Vector Ecology and Control Centers
- Navy Environmental and Preventive Medicine Units (NEPMU)
- management of the Navy Drug Screening Labs
- program manager for health promotion
- program manager for clinical epidemiology program. [Ref. 41]

2. Mission

NEHC's mission to "Ensure Navy and Marine Corps readiness through leadership in prevention of disease and promotion of health" encompasses the organizational changes of the command and the underlying goal of their various responsibilities.

[Ref. 6] NEHC's mission statement reflects the alignment of their organization with the MHS 2020 Vision, MHS Strategic Plan, and the Navy Medicine Strategic Plan, which were discussed in Chapter III, as well as with the vision of the Navy Surgeon General, Vice Admiral Harold Koenig. [Ref. 46] In September 1996, Vice Admiral Koenig stated in a Surgeon General's Situation Report (SG's SITREP),

Navy Medicine is at an intersection and we have to make a decision which way to go. If we go straight ahead, we'll stay on the road of curative medicine, if we turn, we'll go down the road of wellness and prevention. Some of you have already made the turn, others of you have your turn signals on and a few of you are sitting there with your foot on the brake, as if still trying to make up your mind. WE ARE GOING TO TURN, so we are prepared for health care in the 21st Century. [Ref. 47]

NEHC has implemented this call for change by focusing on the prevention of disease and promotion of health through a population-based approach, exemplified in the NEHC Strategic Plan, Table 4.2. [Ref. 6, 46]

3. Population-Based Approach to Health Care

Central to the NEHC's various program responsibilities is the population-based approach to care, an approach grounded in a public health role. NEHC's command philosophy makes this point explicit:

What all of us at NEHC have in common, across our many specialties and activities, is the population-based foundation of preventive medicine. It is that common foundation that provides us with unparalleled opportunities to use our expertise in some new ways to make even greater and broader contributions to Navy Medicine. [Ref. 48]

This philosophy is also expressed in NEHC's command motto of, "Think Populations...See Individuals," which emphasizes a population-based approach to planning while meeting the needs of individuals. [Ref. 6, 46] A population-based strategy of prevention is intended to provide health care professionals with the tools to improve the health of the overall population through policy development and practices. This approach is a fundamental and essential element in the successful implementation of a health promotion approach to health care. [Ref. 49] It is also the primary reason NEHC was appointed Program Manager for the Clinical Epidemiology Program (CEP) in 1998. (The CEP is discussed in Chapter VI).

MISSION

Ensure Navy and Marine Corps readiness through leadership in prevention of disease and promotion of health.

VISION

- We are dynamic, responsive, and innovative.
- We are global partners in public health.
- Senior specialist and specialty leaders compete for assignment to this command.
- Our work environment fosters team building and empowers each individual to be a leader.
- We develop and reinforce the definitive expertise as well as the skills necessary for individuals to participate fully as respected members of a team.
- We use state-of-the-art facilities and equipment that enhance teamwork and information exchange.
- We provide proactive and responsive service.

GUIDING PRINCIPLES

Commitment We are dedicated individuals, building professional relationships and motivated by quality customer service.

Readiness We work as a team, anticipating and maintaining the necessary resources to respond promptly to our customers' needs--first time, every time.

Integrity We uncompromisingly adhere to principle, courage of conviction, and truth in all matters, professional and personal.

Trust We trust individuals to do the right thing.

Leadership We show the way.

GOALS

Readiness We will proactively provide preventive medicine support to the fleet to increase the readiness of operational forces.

Promotion of Health We will promote a lifestyle culture that maximizes health and readiness.

Communication Through mutual understanding, we will anticipate our customers' needs providing effective and timely transfer of information.

Professional Development and Training We will champion the development of professional capabilities of personnel as part of a career-long effort to ensure readiness.

Leadership We will lead the Navy and Marine Corps in applying a population-based, preventive medicine approach to readiness.

Table 4.2 Navy Environmental Health Center Strategic Plan [Ref. 6, 46]

D. NEHC HEALTH PROMOTION PROGRAM RESPONSIBILITIES

In January 1992, NEHC was tasked by the Naval Medical Department to represent BUMED for health promotion programs. [Ref. 21] As BUMED's representative, NEHC's responsibilities are to:

- plan, evaluate, and coordinate Naval Medical Department health promotion policy,
- develop and assist in building successful intervention programs,
- serve as the main source for health promotion counseling, education and clinical services,
- assist with infrastructure building at MTFs,
- identify Navy reservists with health promotion experience, and
- assist activities in determining risk reduction interventions. [Ref. 21, 41]

In December 1994, NEHC was designated as the Program Manager for health promotion activities for Navy Medicine. [Ref. 44] NEHC's health promotion responsibilities were expanded to include program development, implementation, and ongoing review; future programming and budget formulation recommendations; funds distribution and manpower allocation recommendations. [Ref. 44] Additionally, NEHC provides health promotion training and professional development; coordinates the annual health promotion conference; publishes the weekly "Friday Facts";¹³ provides technical

¹³ "Friday Facts" is a weekly publication produced by NEHC to provide up-to-date information on health promotion programs and to disseminate health promotion information throughout Navy Medicine. "Friday Facts" is available on the NEHC Web Site, <http://www-nehc.med.navy.mil>.

assistance to commands; reviews policy; acts as a "clearinghouse" for health promotion resources; develop products for use in the field; oversees the development and implementation of wellness centers throughout Navy Medicine; and performs assist visits and evaluations. [Ref. 41, 42, 50]

Among the many health promotion initiatives at NEHC and MTFs throughout Navy Medicine, NEHC continues to focus on the health promotion program components defined by BUMED including traditional health promotion, health protection, preventive services, and system improvement elements. This focus includes, but is not limited to these activities:

- Alcohol and Drug Abuse Prevention
- Clinical Preventive Services such as PPIP
- Health Risk Appraisals (HRA) and/or Health Enrollment Assessment Review (HEAR)¹⁴
- Injury Prevention
- Navy Nutrition Programs, including "5-A-Day The Navy Way" and "Semper Five-A-Day"
- Self-Care and Demand Management¹⁵
- Suicide Awareness and Prevention

¹⁴ In October 1996, ASD(HA) directed implementation of the HEAR, a health assessment survey instrument, no later than January 1, 1997. [Ref. 51] The HEAR is a key component in determining the health status of the population, providing a baseline to measure the quality of care. [Ref. 8]

¹⁵ Self care is an educational program designed to provide beneficiaries with the resources and knowledge necessary for them to make more informed health care decisions. For every \$1 spent for self care there is a \$5 savings in direct care costs. [Ref. 41]

- Navy Tobacco Programs: Prevention and Cessation
- DOD Healthy People 2000 Objectives.

E. SUMMARY OF CHAPTER IV

In 1992, the CHBUMED was tasked with direct responsibility for assisting DON commands in developing, implementing, and promoting health promotion programs. Overall program responsibility is shared with BUPERS, which is responsible for health promotion policy. In 1994, the CHBUMED designated the NEHC, a population focused command, as the Program Manager and Navy Medicine representative for health promotion.

As the Program Manager, NEHC has assisted in the development and enforcement of a standardized health promotion program throughout Navy Medicine. NEHC has also been an advocate for the program, especially in terms of funding. FY 1994 was the first year that specific funds for health promotion were designated by Navy Medicine. Although the components of Navy Medicine's health promotion program are instrumental in the achievement of MHS 2020, the MHS Strategic Plan, the Navy Medicine Strategic Plan, and MRSP, all of which focus on readiness and a "healthy and fit force," health promotion consumed less than one percent of the total Navy Medicine budget in FY 1994 through FY 1998. [Ref. 42] Health promotion funding issues are discussed in Chapter V.

V. HEALTH PROMOTION FUNDING

This chapter will provide an overview of funding for health promotion within ASD(HA), military services, and the NEHC. It will also provide an analysis of Navy Medicine funding for health promotion and discuss the tools used to measure the efficacy of health promotion programs.

A. INTRODUCTION

In 1986, when DOD established a health promotion policy in writing, support for the program was minimal at best. Although few would have disputed the benefits of a healthier military force, DOD could not quantify cost savings for supporting the program. This, coupled with the fact that DOD did not provide funding for health promotion policy implementation, led to minimal compliance with the program.

Nonetheless, during the early 1990's, health promotion, prevention, and wellness notions continued to receive national attention, especially in light of the need to control rising health care costs. While HMOs were supposed to be the answer to cost control, they were, and continue to be, hesitant to invest in these programs due to the turnover in their plan population. For example, most HMOs experience changes in their population every 18 months, and it may take an average of 10 to 12 years to change health outcomes through health promotion. [Ref. 42] From the HMO perspective, it is not financially sound for HMOs to invest in improving the health of their beneficiaries if they will never realize the return on their investment.

On the other hand, DOD has a responsibility for a relatively stable and captured population. The creation of TRICARE in 1993 emphasized this fact. Therefore, it seems logical that DOD would be the forerunner for a health promotion, prevention, or wellness movement. Regardless of the logic, funding was, and is, still an issue. While supporters of health promotion advocate larger budgets, others speculate that what the MHS is spending now is too much. [Ref. 42, 43] Due to the lack of data available to support funding military medicine's health promotion programs, it is difficult to determine which side is correct in their assumptions.

B. FUNDING FOR HEALTH PROMOTION

A discussion of funding for health promotion from the ASD(HA), the military services, and the NEHC perspective follows.

1. ASD (HA)

Although the health promotion program is a DOD mandated requirement, the MHS does not receive funds specifically for the program from ASD(HA). Because the military services' definitions of health promotion differ, Health Affairs expects each service to determine the appropriate level of funding for health promotion programs required to meet the needs of their beneficiaries. [Ref. 52] According to Health Affairs, it has been very difficult for the MHS to define a precise requirement for health promotion funding because health promotion is embedded in too many health care activities.

Although Health Affairs does not annually fund the MHS for health promotion, in FY 1997 they did fund initiatives for preventive medicine and health promotion programs. [Ref. 53] Proposals, which were submitted by various health care facilities, were selected based on criteria such as overall population impact, system-wide replication opportunity, cost, scientific basis and compatibility with the PPIP program and DOD selected Healthy People 2000 objectives. [Ref. 53] The funding provided was intended to be "seed money" for the initiatives, with the expectation that successful programs would be integrated into the Defense Health Program (DHP). Navy Medicine received \$2,768,000 for health promotion and prevention initiatives in FY 1997 and FY 1998. [Ref. 54, 55]

In February 1998, the ASD(HA) published a policy statement on the appropriate resourcing for health and fitness (H&F) in response to the January 1997 MHS recommendation to dramatically increase the focus on H&F. [Ref. 56] The policy requires each of the Surgeon Generals of the military services to determine the total resources required to implement a complete H&F program as defined by DOD Directive 1010.10, the draft HA policy, "Health Promotion and Disease Prevention," the PPIP policy, and the "Catalogue of Requirement for Health and Fitness Programs." Once the total resource requirement is determined, it will be possible for ASD(HA) to identify alternative resources for the program as well as funding shortfalls. The ASD(HA) policy also states that, "Reinvestment of earned revenues in H&F should ultimately reduce the Department's overall health care costs." [Ref. 56]

Each of the military services will be evaluated on its progress toward meeting the MHS objective of a complete H&F program by comparing the total identified requirements and the percent of funding applied toward these requirements. [Ref. 56] Evaluation is expected to begin in FY 1999. [Ref. 52]

2. Military Services

The medical departments of all three services share the same vision of a healthy and fit force and have health promotion programs based upon the 1986 DOD directive. However, each service funds and defines the scope of health promotion differently based upon the perceived needs of their beneficiaries.

a. Health Promotion in the United States Air Force (USAF)

In 1987, the United States Air Force (USAF) established a health promotion program in accordance with the 1986 DOD health promotion policy. [Ref. 57] By 1992, a full-time Health Promotion Program Manager was in place at each USAF facility. Health promotion in the Air Force was structured so that its medical department had complete oversight of the program, unlike the Navy's health promotion program, which is shared function between BUMED and BUPERS. USAF line commands provide funds to the medical department for health promotion programs related to fitness. [Ref. 57]

In FY 1994 through FY 1996 an average of 80 facilities throughout the USAF received funds earmarked for health promotion. Each facility received \$12,000 for Health and Wellness Centers and \$5,000 for miscellaneous expenses such as health

promotion program materials. [Ref. 57] For FY 1994 through FY 1998, the USAF recommended that each MTF budget \$10 per active duty member per year for health promotion. However, the USAF cannot ensure that each MTF executes the recommended amount because, as in Navy Medicine, the dollars are not fenced. [Ref. 57] USAF Medicine has similar problems to Navy Medicine in accounting for actual health promotion cost and execution.

b. Health Promotion in the United States Army

In the early 1980s, the United States Army (USA) began to look at health promotion programs through a "corporate fitness" study. [Ref. 58] Following the study, the USA started implementing health promotion programs in the mid 1980s and published an official policy in 1987. The USA health promotion campaign, commonly referred to as "Fit to Win," is structured similarly to the Navy's health promotion program. The Deputy Chief of Staff for Personnel (DCSPERS) is responsible for policy, and the Medical Command (MEDCOM) is responsible for program. USA policy requires a health promotion program at each installation and expects the programs to vary based upon installation specific needs. [Ref. 58]

The MEDCOM is responsible for funding health promotion programs within the USA. Health promotion funding data for the USA could not be identified. [Ref. 59] The USA, like the USAF and Navy Medicine, has encountered problems in capturing the total cost of health promotion and is currently addressing this issue, as well as various program measurement and implementation issues.

c. Health Promotion in Navy Medicine

In 1994, BUMED began providing funds specifically for health promotion programs as illustrated in Table 5.1. [Ref. 54, 55] Funds are distributed to NEHC and medical and dental facilities for the execution and administration of Navy Medicine's health promotion program. These funds include support for civilian salaries for health promotion positions. However, they do not capture the total cost of the program because they do not include the amounts spent on immunizations, screenings, preventive measures, and other health promotion activities. [Ref. 42, 43, 54, 55] An analysis of Navy Medicine funding for health promotion programs is provided in section C of this chapter.

| Fiscal Year | Navy Medicine Health Promotion Funding | Percentage Change |
|-------------|--|-------------------|
| 1994 | \$503,000 | N/A |
| 1995 | \$1,990,000 | 395.63% |
| 1996 | \$4,211,000 | 211.61% |
| 1997 | \$5,800,814 | 137.75% |
| 1998 | \$9,025,000 | 155.58% |

Table 5.1 Navy Medicine Health Promotion Funding¹⁶

¹⁶ The totals for FY 1997 and FY 1998 include \$2,768,000 from ASD(HA) for health promotion initiatives. Source: BUMED 01.

3. NEHC

Table 5.2 illustrates the level of funding for health promotion programs at NEHC.

Anticipating being appointed the Program Manager for health promotion the following fiscal year, in FY 1994 NEHC allocated command funds to begin preparation for the new program responsibilities. [Ref. 54] In FY 1995, NEHC began receiving funds from BUMED for health promotion. NEHC uses the funds for program execution and administration including travel, training, civilian salaries, etc. [Ref. 41, 54] Table 5.2 indicates that funding for the program remained relatively constant from 1994 to 1997 and almost doubled in 1998. The increase in FY 1998 was due to the receipt of additional funds from BUMED for training, professional development, and product development. [Ref. 50, 54] NEHC expects funding for FY 1999 to be equal to FY 1998. [Ref. 54]

| Fiscal Year | NEHC Health Promotion Funding | Total NEHC Funding | NEHC Health Promotion Funding as a Percentage of Total NEHC Funding |
|-------------|-------------------------------|--------------------|---|
| 1994 | \$438,600 | \$10,743,800 | 4.08% |
| 1995 | \$576,500 | \$10,828,000 | 5.32% |
| 1996 | \$506,500 | \$10,972,400 | 4.62% |
| 1997 | \$715,800 | \$11,002,000 | 6.51% |
| 1998 | \$1,038,700 | \$9,969,400 | 10.42% |

Table 5.2 Navy Environmental Health Center Health Promotion Funding¹⁷

¹⁷ The totals for FY 1997 and 1998 include \$220,000 and \$129,000, respectively, for health promotion initiatives at NEHC. Source: NEHC Resource Management Director.

C. ANALYSIS OF NAVY MEDICINE HEALTH PROMOTION FUNDING

As noted in Table 5.1, from 1994 to 1998, the funding for the program increased from \$503,000 to \$9,025,000, a 1,794 percent increase. While the percentage increase appears remarkable at first glance, when considered in terms of the beneficiary population, it is quite trivial. For instance, in FY 1997, the amount of health promotion funds expended per beneficiary for the entire year was \$2.74.¹⁸ This is significantly less than the \$100 per patient, per year amount advocated by health promotion personnel. [Ref. 41, 42] Table 5.3 compares funding for health promotion to total funding for Navy Medicine. Although health promotion funding has steadily increased while the total Navy Medicine budget has decreased, health promotion accounts for less than one percent of the total dollars spent in Navy Medicine.

| Fiscal Year | Navy Medicine Health Promotion Funding | Total Navy Medicine Funding | Navy Health Promotion Funding as a Percentage Of Total Navy Medicine Funding |
|-------------|--|-----------------------------|--|
| 1994 | \$503,000 | \$2,920,482,000 | 0.0172% |
| 1995 | \$1,990,000 | \$2,887,855,000 | 0.0689% |
| 1996 | \$4,211,000 | \$2,841,225,000 | 0.1482% |
| 1997 | \$5,800,814 | \$2,836,667,000 | 0.2045% |
| 1998 | \$9,025,000 | \$1,643,662,000 | 0.5491% |

Table 5.3 Comparison of Health Promotion Funding to Total Navy Medicine Funding¹⁹

¹⁸ This figure is based on FY 1997 estimations of 700,000 active duty and 2,600,000 family members and retirees, for a total DON population of 3,300,000.

¹⁹ The decrease in total Navy Medicine Funding from FY 1997 to FY 1998 was due in part to the transfer of CHAMPUS/Managed Care Support (MCS) contract execution to the TRICARE Management Activity (TMA). Source: BUMED 01.

It is important to keep in mind that the funding provided by BUMED does not necessarily reflect the actual dollars spent on the program. Three problems, treated below, explain this. These problems are the lack of a health promotion cost code, and issues affecting execution of funds and utilization of manpower. Until these issues can be resolved, it will continue to be difficult to account for the total cost of health promotion and to measure the success of the program in terms of cost savings or cost avoidance.

1. Health Promotion Cost Code

Prior to FY 1999, BUMED did not have a way to account for the cost of health promotion provided to each beneficiary or to estimate the total cost of the program because a separate cost code account did not exist for the program. [Ref. 41, 42, 55] Beginning in FY 1999, facilities have been directed to use the cost code account 4SBK for health promotion. This account should capture the cost of the program itself including personnel, training, equipment, etc; the cost of program administration including sponsoring health promotion programs, hiring speakers, and duplicating; and the cost of clinical preventive services. [Ref. 43] This will enable BUMED to identify the actual amounts spent on screening verses diagnosis and treatment and to determine whether funds are being spent in the appropriate areas. Until a figure for health promotion is validated, BUMED is estimating that 10 percent of the time a patient spends with a health care provider at a visit is for health promotion. [Ref. 55]

2. Execution Issue

The funds allocated to facilities for health promotion may differ from what is actually executed. As the Program Manager, NEHC makes recommendations to BUMED for the distribution of health promotion funds to MTFs. [Ref. 42, 43, 54, 55] Table 5.4 is the 1998 recommendation for distribution of funds. However, once these funds are received at the MTF, Commanding Officers have complete discretion as to the total amount of funds used for the health promotion program at their respective facility. For instance, they may provide additional funds for health promotion, and they may use less funds.²⁰ NEHC does monitor the health promotion funds spent at each facility and may make recommendations, through BUMED to have funds taken away from a facility if the dollars are not being used for health promotion. However, because of political implications of taking away dollars from a facility, thereby decreasing their ability to provide tertiary or emergent care, this rarely occurs. Until facilities are measured against health promotion and held accountable for their performance in this area, most will continue to focus their resources on providing acute care. [Ref. 43]

3. Utilization of Manpower

The funds distributed by BUMED for civilian personnel in health promotion positions, none of which are in the fleet where active duty normally receive care, must be used for that purpose. [Ref. 43] Table 5.5 illustrates the increase in civilian health promotion positions from FY 1994 to FY 1998. While the Navy Medicine health

²⁰ BUMED does not fence health promotion dollars because it takes authority away from the Commanding Officers.

| | |
|--|--------------------|
| National Naval Dental Center, Bethesda | \$20,000 |
| National Naval Medical Center, Bethesda | 150,000 |
| Naval Dental Center Bremerton | 20,000 |
| Naval Dental Center Camp Lejeune | 20,000 |
| Naval Dental Center Camp Pendleton | 20,000 |
| Naval Dental Center Great Lakes | 20,000 |
| Naval Dental Center Guam | 10,000 |
| Naval Dental Center Jacksonville | 20,000 |
| Naval Dental Center Naples | 10,000 |
| Naval Dental Center Newport | 10,000 |
| Naval Dental Center Norfolk | 20,000 |
| Naval Dental Center Okinawa | 20,000 |
| Naval Dental Center Parris Island | 10,000 |
| Naval Dental Center Pearl Harbor | 10,000 |
| Naval Dental Center Pensacola | 20,000 |
| Naval Dental Center Roosevelt Roads | 10,000 |
| Naval Dental Center San Diego | 20,000 |
| Naval Dental Center Yokuska | 10,000 |
| Naval Hospital 29 Palms | 30,000 |
| Naval Hospital Beaufort | 60,000 |
| Naval Hospital Bremerton | 310,000 |
| Naval Hospital Camp Lejeune | 490,000 |
| Naval Hospital Camp Pendleton | 130,000 |
| Naval Hospital Charleston | 40,000 |
| Naval Hospital Cherry Point | 50,000 |
| Naval Hospital Corpus Christi | 30,000 |
| Naval Hospital Great Lakes | 200,000 |
| Naval Hospital Groton | 50,000 |
| Naval Hospital Guam | 20,000 |
| Naval Hospital Guantanamo Bay | 15,000 |
| Naval Hospital Jacksonville | 438,000 |
| Naval Hospital Keflavik | 75,000 |
| Naval Hospital Lemoore | 40,000 |
| Naval Hospital Naples | 30,000 |
| Naval Hospital Newport | 50,000 |
| Naval Hospital Oak Harbor | 60,000 |
| Naval Hospital Okinawa | 90,000 |
| Naval Hospital Patuxent River | 15,000 |
| Naval Hospital Pensacola | 120,000 |
| Naval Hospital Research Center | 72,000 |
| Naval Hospital Roosevelt Roads | 30,000 |
| Naval Hospital Rota | 30,000 |
| Naval Hospital Sigonella | 30,000 |
| Naval Hospital Yokuska | 40,000 |
| Naval Medical Center Portsmouth | 250,000 |
| Naval Medical Center San Diego | 250,000 |
| Naval Medical Clinic Annapolis | 40,000 |
| Naval Medical Clinic London | 30,000 |
| Naval Medical Clinic New Orleans | 20,000 |
| Naval Medical Clinic Pearl Harbor | 100,000 |
| Naval Medical Clinic Port Hueneme | 10,000 |
| Naval Medical Clinic Portsmouth, New Hampshire | 10,000 |
| Naval Medical Clinic Quantico | 80,000 |
| Navy Environmental Health Center | 566,000 |
| TOTAL | \$4,321,000 |

Table 5.4 Recommended Distribution of Health Promotion Funds for FY 1998 [Ref. 54]

promotion funding totals illustrated in Table 5.1 account for civilian personnel cost, they do not include the active duty personnel cost for executing and administering the program. [Ref. 55] It is estimated that there are approximately 56 active duty military personnel, E-3 and above, filling health promotion positions. [Ref. 50] The ratio of military to civilian personnel filling health promotion positions is roughly one to one.

| Fiscal Year | Civilian Health Promotion Endstrength | Percentage Change | Civilian Health Promotion Full Time Equivalents | Percentage Change |
|-------------|---------------------------------------|-------------------|---|-------------------|
| 1994 | 12 | N/A | 10 | N/A |
| 1995 | 44 | 366.67% | 29 | 290.00% |
| 1996 | 57 | 129.55% | 47 | 162.07% |
| 1997 | 57 | 100.00% | 56 | 119.15% |
| 1998 | 57 | 100.00% | 56 | 100.00% |

Table 5.5 Civilian Health Promotion Personnel, FY 1994 to FY 1998²¹

D. MEASURING THE EFFICACY OF HEALTH PROMOTION

The MHS as a whole has not studied or collected data on health promotion programs in the military to determine the efficacy of the programs in terms of outcome measures, evidence based practices, or cost savings and cost avoidance. In implementing health promotion programs in the military, particularly within Navy Medicine, the focus has been on establishing the program through a systematic approach and not on

²¹ Source: BUMED 01.

collecting, interpreting, analyzing, or responding to data which would support and validate health promotion efforts. [Ref. 50]

While one may speculate on the various reasons why data has not been an issue to this point, it may be the case that Navy Medicine has assumed that healthier people require less health care and that cost savings will automatically result, and that the best way to ensure compliance with health promotion is through standardized system-wide programs. Under these assumptions, data is not an issue. However, to make the optimal use of scarce military health care dollars, data are needed to determine the efficacy of health promotion programs and justify expending resources to support them.

According to the January 1992 Naval Medical Department Health Promotion Program instruction, BUMEDINST 6110.13, discussed in Chapter III, "Effective health promotion programs need to demonstrate the actual ability to reduce the burden of disease, injury and disability within the community." [Ref. 21] Although this would seem to be logical, it is not an easy task. Unless the appropriate processes are in place to collect data in order to demonstrate the efficacy of health promotion within the military, speculation about the merits of the program, which has the potential to enhance and improve health within a population, will continue to exist, as well as less than full support. A discussion of the minimal processes required to evaluate the effectiveness of health promotion follows.

1. Health Status of the Population

Before attempting to measure the effectiveness of health care delivery, a benchmark of the health status of the population must be established in order to determine what they need and what they want in terms of health care. Without this information, a population-based approach to health care delivery is relatively ineffective because of the inability to determine that resources and efforts are being targeted in the right areas. [Ref. 43, 59]

The HEAR was intended to be a tool to comprehensively define the health status of the population by establishing a baseline from which measures of quality health care could be derived. [Ref. 8] It was adopted by the DOD as an enrollment tool for the entire beneficiary population and was initially administered by a TRICARE contractor. In 1996, the ASD(HA) directed that the HEAR be implemented throughout the MHS no later than January 1997. [Ref. 51] However, the administration and processing of the HEAR was done inconsistently throughout the MHS and did not address the active duty population. [Ref. 50]

The TMA recently established a committee to look at the value of the HEAR, including how it might be improved to meet its original purpose. [Ref. 50] In the interim, NEHC is advocating use of the HRA as a means to collect data on the beneficiary population. The HRA was used in the past to provide MTFs with population data, but, because there is no mandate to use the HRA, it is used sporadically at the MTFs.

2. Outcome Measures

When the health promotion program was established within Navy Medicine in 1992, mechanisms for measuring the effectiveness of the program were somewhat of an afterthought. A few Navy wellness centers are beginning to produce outcome measures, and the PPIP program is expected to produce outcome measurements for Clinical Preventive Services. [Ref. 41, 50] However, historically, health care delivery has not been focused on outcome measures or best practice guidelines in the clinical setting. Over the past few years, some MTFs in Navy Medicine have developed a few outcome measures, but in many cases, inconsistencies have existed as to the actual use of these tools in changing the health care delivery. [Ref. 50]

Without a baseline measurement of the health status of the population to and established outcome measures, it is very difficult to determine if the care, whether preventive or acute in nature, is effective. It is even more difficult to provide effective health care if corrective action is not taken in response to outcome measure results. If the skills do not exist within Navy Medicine to evaluate, analyze, interpret, and act on results of the health status of the population and outcome measures, it is virtually impossible to evaluate the efficacy of health promotion.

3. Cost Savings/Cost Avoidance

It is difficult to precisely quantify the total cost of health promotion programs within the MHS and to realize significant cost savings in the short term which can be directly attributed to these programs. Over the long term, Navy health promotion

programs may improve the health of the population. [Ref. 42, 43] However, until data to support the actual relationship between health promotion programs in the military and improved health among beneficiaries exists, it is futile to attempt to derive potential cost savings or cost avoidance from health promotion.

This does not mean that health promotion can not provide costs savings or cost avoidance. In fact, more than 81 percent of American businesses with 50 or more employees have some form of health promotion programs, commonly referred to as worksite health promotion programs. [Ref. 60] For some companies, medical costs can consume half of their profits in a given year. Therefore, they view health promotion as an investment in their employees and their bottom line.

Private sector studies have shown that investing in worksite health promotion can lower health care costs, reduce absenteeism, reduce the use of health care benefits, reduce worker compensation and disease management cost, reduce injuries, and increase morale and loyalty. [Ref. 60, 61] The success these businesses have experienced with health promotion programs can be attributed in part to the "business" approach they have used to implement these programs. For instance, they measure their population needs through HRAs, develop and implement programs and outcome measures to address those needs, and take corrective action based upon the outcome measures. [Ref. 60] They are also able to account for the total cost of their health promotion programs.

One example of potential cost savings and cost avoidance attributed to health promotion programs is Pacific Bell's FitWorks program. [Ref. 60] The program was

established in the late 1980s with the main goal of reducing absenteeism. Since that time, the program has continued to grow to meet the needs of Pacific Bell's employees and now generates a 3:1 return on investment. Table 5.6 illustrates the savings Pacific Bell reports since the inception of their FitWorks program in the late 1980s.

| | |
|---|---------------------|
| Reduced Disability Costs | \$4,700,000 |
| Reduced Costs for Incidental Absences | 2,000,000 |
| Reduced Costs for Medical Care | 681,000 |
| Medical Cost Avoidance | 728,000 |
| Total Savings in Vendor Replacement Costs | 8,500,000 |
| TOTAL REPORTED SAVINGS | \$16,609,000 |

Table 5.6 Pacific Bell Reported Savings Related to FitWorks²²

Pacific Bell's success with FitWorks is not intended to minimize the difficulty involved in delivering health promotion programs to beneficiaries within the MHS. A commonality between private sector businesses and the MHS rarely exists. However, in terms of health promotion, the MHS may look at these worksite health promotion programs as examples of the potential savings that can occur when health promotion is tailored to population specific needs, monitored for effectiveness, and accounted for in terms of total cost and return on investment.

²² Source: Wellness Junction Website, <http://www.wellnessjunction.com>.

4. Relationship to Clinical Epidemiology

Navy Medicine's health promotion program policy lists the components of an effective health promotion program, discussed in Chapter III. [Ref. 21] Among these guiding principles is the use of scientific evaluation, through epidemiological methods and statistical quality control techniques, to study the incidence of disease within the population and to target health promotion initiatives. The concept of using epidemiology as a method to scientifically evaluate and improve the health status of the population is one of the goals of the Clinical Epidemiology Program (CEP) established by the Medical Corps in 1997. The CEP is a measurement tool that can be used to evaluate the health status of the population; to develop, interpret, and analyze outcome measures; and to coordinate the development of best practice guidelines for health care delivery throughout Navy Medicine. The CEP is discussed in detail in Chapter VI.

E. SUMMARY OF CHAPTER V

The ASD(HA) does not dictate the level of funding for health promotion programs within the MHS even though the MHS acknowledges their importance in the achievement of the goal of a healthy and fit force. Furthermore, each service funds and defines health promotion differently. Navy Medicine began funding health promotion at the treatment facility level in FY 1994. Funding has steadily increased, though it remains at less than one percent of total Navy Medicine funds.

Although health promotion programs are intended to enhance the health of the population, data does not exist within the MHS or the services to support the efficacy of

these programs in terms of performance and cost savings and avoidance. The inability to demonstrate the efficacy of the program stems from the fact that the MHS appears to have been more focused on implementing the program rather than ensuring that it was meeting the needs of the beneficiaries. Additionally, a mechanism to establish a usable benchmark for the health status of the populations does not exist, or is not used, at most facilities. This in turn creates problems in developing outcome measures and evidence based practices to monitor the program.

Lack of data to support the success of health promotion programs also leads to the inability to identify cost savings and cost avoidance directly related to these programs. This is compounded by the fact that the MHS is not able to capture the total cost of health promotion due to the lack of a health promotion cost code, inability to ensure that the dollars funded for health promotion are actually executed by the facilities, and inability to capture the total cost of personnel filling health promotion positions, particularly active duty military.

Experience in some private sector businesses indicates that well-planned, comprehensive health promotion programs, tailored to the needs of the population, can enhance health and result in significant cost savings and cost avoidance. Navy Medicine has recognized the need to be able to collect, analyze, interpret, and act on scientifically based data in order to enhance health and realize a return on the health promotion investment. This recognition has resulted in the establishment of the CEP which is discussed in Chapter VI.

VI. CLINICAL EPIDEMIOLOGY PROGRAM

The purpose of this chapter is to provide a basic understanding of epidemiological concepts and the relationship of health promotion to Navy Medicine's Clinical Epidemiology Program (CEP). The NEHC's responsibilities for the CEP, the Clinical Epidemiology billets, baseline requirements for the program, the Clinical Epidemiology position description, Clinical Epidemiology Training Course (CETC), and funding for the program will also be discussed.

A. BACKGROUND

Epidemiology, defined as the study of disease in terms of distribution, occurrence, determinants, and control in a defined human population, has traditionally been concerned with the behavior of a communicable disease within a population and has often been associated with the study of epidemics and epidemic diseases.²³ [Ref. 10, 17] The focus of epidemiology is to promote, protect, and restore health in a population as quickly as possible. It is a philosophical and scientific method of studying health problems and developing new strategies of health care delivery within a population. [Ref. 10] As such, epidemiology can be used to obtain data and information about a population which:

- describe the spectrum of disease
- describe the natural history of a disease
- identify factors which increase the risk of acquiring a disease
- predict disease trends

²³ An epidemic is the rapid spread of a disease among individuals within a population in excess of what is normally expected, such as the plague, measles, and acquired immunodeficiency syndrome (AIDS). [Ref. 17]

- clarify the mechanisms of disease transmission
- test the efficacy of disease transmission
- evaluate intervention programs
- identify the health needs of a population. [Ref. 10]

Because of the population focus of epidemiology, it has special appeal for managed care applications. [Ref. 62] While traditional health care delivery has focused on the needs of the individual patient, managed care focuses on the health of a defined population. [Ref. 8] A managed care organization is responsible and accountable for the health of the defined population and embodies the principle of population health management, which is rooted in epidemiology.²⁴ Table 6.1 represents the epidemiological approach to health care delivery. Using an epidemiological approach, medical care may be viewed as the study and evaluation of the ways in which health care services are, or could be, delivered.

Although managed care organizations, especially HMOs, have generally been viewed as providing lower cost health care than traditional fee-for-service organizations, they have recently begun to recognize that public health and preventive medicine skills, i.e., epidemiological skills, are relevant and important in managing the health of a defined population. [Ref. 63] Without knowing the health status of the population, it is very difficult to determine the resource requirements for and coordination of preventive, diagnostic, and treatment services in order to ensure the greatest value and quality of

²⁴ The defined population, in the context of population health management, includes those who contact the health care organization for care and those who do not. [Ref. 8]

1. Define the population which you are responsible to and accountable for.
2. Apply epidemiological principles to analyze the makeup of the population, their collective health status, and anticipated needs.
3. Plan and apply resources to change the system where needed to prevent health problems from developing and to treat and modify medical conditions after they develop.
4. Continually analyze the system performance to answer the question: "Is the health of the population improving?"

Table 6.1 Epidemiological Approach to Health Care Delivery [Ref. 8]

healthcare delivery. [Ref. 64, 65] A majority of the physicians in managed care systems lack the skills needed to evaluate and manage the health of a population. Improving and managing the health of a population requires knowledge of epidemiology to determine the health status of the population, both risks and needs; team building skills to coordinate community intervention; and knowledge of preventive care and health promotion to prevent disease. [Ref. 66] However, preventive medicine physicians have the population-based medicine skills, which are rooted in epidemiology and biostatistics, to make the transition from a sick care system to a health care or well care delivery system. Table 6.2 illustrates the typical skills and competencies of preventive medicine physicians. [Ref. 66, 67,]

In 1995, recognizing the current and future need for physicians who possess these types of skills, the American Board of Preventive Medicine (ABPM) submitted a proposal for approval to the American Board of Medical Specialties (ABMS) in order to certify physicians in the subspecialty of Managerial Medicine. [Ref. 63, 66] A survey, published in the American Journal of Preventive Medicine in 1998, compared the preventive medicine competencies recommended by the ABPM to the competencies required by managed care organizations. [Ref. 63, 67] Of the 27 competencies, 10 received a score of 4 or more on a 5-point Likert scale, and the remaining 17 competencies received scores of between 3.98 and 3.04. [Ref. 67] Epidemiology and statistics made the top ten list. The survey results clearly suggest the value of population-based skills in managed care environments.

- Evaluate community and defined population needs to determine health risks, wants, and needs.
- Design and implement programs to promote health and prevent disease within the medical practice setting.
- Perform health services and outcomes research leading to evidence-based practice and cost-effective decisions.
- Make management decisions affecting patient care that are based on clinical and medical knowledge, as well as administrative and fiscal constraints.

Table 6.2 Preventive Medicine Physician Skills and Competencies

In 1997, Navy Medicine, which began the transition to a managed care environment in 1993 under TRICARE, established the baseline requirements for Physician Clinical Epidemiologist at MTFs to assist in the evolution of population-based health care. While this program is still in the early implementation phases, many Navy physicians, mainly those with preventive medicine backgrounds, have been discussing the concept of such a specialty within military medicine for several years. [Ref. 68, 69, 70] The vision of one military physicians was of a physician capable of, "...developing, interpreting, and communicating outcome measures in health care...have training and experience in providing health care to individuals and populations; developing and managing databases; and using and communicating the results of statistical analyses." [Ref. 71] These capabilities, along with those recommended by the ABPM, were part of the justification used to develop the Clinical Epidemiology Program (CEP).

B. CLINICAL EPIDEMIOLOGY PROGRAM (CEP) DEVELOPMENT

In support of the BUMED strategic goal to maximize stewardship of personnel and material assets, the Medical Corps incorporated the assignment of Clinical Epidemiologists into their 1997 strategic goals. [Ref. 31] The corporate indicator for this goal recognized the necessity for clinicians to be able to manage population data in order to develop and interpret data-based outcomes analysis and data-based clinical practice guidelines. Additionally, in an informal survey on the use of data-based outcomes and data-based clinical practice guideline development, the staff of the Chief, Medical Corps, MED-00MC, found that on average, MTFs had only three to four guidelines in place per

hospital with a wide variation in the number, quality and usefulness of the data. [Ref. 31, 70, 72] The facilities that had developed pathways were not analyzing the data and utilizing it as a tool to improve health care delivery. In many cases, the MTFs did not understand that they could develop the pathways according to the needs of their defined population. [Ref. 72] As a result, the MTFs expressed the need for a clinician with the capability to manage the population data.

Although preventive medicine specialists from the military and private sector had been advocating for a physician with these skills for several years, Navy Medicine had not had the capabilities or resources for such a focus. [Ref. 70] However, after reviewing the medical literature in this area and the results of the survey conducted by BUMED, the MED-00MC staff recognized the need for a medical staff champion, and not an administrator, who could speak in support of population health ideas. The idea was to invent a clinician, originally termed a "data doc," who had the skills to understand computer-based analysis and statistics and think in terms of population health, ideas which NEHC had been discussing and focusing on for several years. [Ref. 68, 69, 70] It was also important to have a respected clinician who could develop and analyze outcome measures in order to begin establishing clinical practice guidelines to address the issue of specialty cause variations. [Ref. 70]

Once the baseline requirements for the CEP were established, a prioritized list of billets was submitted to the Deputies Council at BUMED. [Ref. 70] The rationale used to "sell" the program included the need to ensure quality care through best practices by

focusing on the population; ability to capture more predictable and valid cost data through a population-based focus; and ability to ensure greater clinical efficacy. The prioritized list was modified and approved, and by the end of FY 1997, nine billets had been identified for the CEP initiative. [Ref. 68, 70]

C. NEHC RESPONSIBILITIES

The NEHC was designated as the Program Manager for the CEP and received the official appointment letter in April 1998. [Ref. 45, 68, 70] The decision to designate the NEHC was twofold. First, the NEHC mission is heavily focused in population-based health care delivery. Second, because the concept for the program is not universally accepted among many in Navy Medicine, it was important to have continuity of support within a central organization if the program was to be successful. [Ref. 70]

Whatever the reason, the NEHC Commanding Officer, Captain Richard Buck, had envisioned this role for the NEHC as early as 1995. In an article in the *Notes From A Stubby Pencil*, reproduced in the Winter 1995 Medical Corps Update, he wrote, "Using a systems approach in looking at Navy Medicine, the maximum leverage for preventive medicine's role in medical management is probably at Navy Environmental Health Center (NEHC) (as the acronym is currently used; i.e., to include all field activities) with 14 of the 27 Preventive Medicine Officer billets. I envision NEHC with the population based foundation of preventive medicine, working with the medical treatment facilities (MTFs) and assisting them in more rapidly and fully incorporating the outcome measure/data driven approach to health care management." [Ref. 73, 74]

D. CLINICAL EPIDEMIOLOGY BILLETS

The original intent of the Medical Corps strategic goal was to identify, billet, train, and assign approximately 50 Clinical Epidemiologists to sites throughout Navy Medicine. [Ref. 31, 68] By the end of FY 1997, nine Medical Corps billets were identified and redesignated as Clinical Epidemiologist billets. [Ref. 68, 70, 72] A discussion of the redesignation, location, and status of the billets, follows.

1. Redesignation of Medical Corps Billets

Because the Medical Corps strategic goal virtually created a new specialty within their Corps, the billets for the Physician Clinical Epidemiologists had to be taken from other specialties within the Medical Corps. Most of the nine billets established by FY 1997 resulted from Base Realignment and Closure (BRAC) decisions. [Ref. 68, 70, 72] For instance, Medical Corps billets from small clinical units, such as Millington, Tennessee, were redesignated as Clinical Epidemiologist. Billets within the Continental United States (CONUS) were realigned to MTFs as necessary, and OCONUS billets which were redesignated as Clinical Epidemiologist stayed at the respective facilities. As a whole, the Medical Corps end strength did not change, but some specialties such as pathology and internal medicine were decreased. [Ref. 72]

Because end strength cannot be increased overall, the near-term goal for the Clinical Epidemiologist billets has been decreased to 16. Currently, seven billets have not been realigned, but locations for these billets have been identified. Due to competing

initiatives and Congressional mandates, it is not anticipated that these billets will be redesignated until some time in the future. [Ref. 72, 75]

2. Billet Locations

The locations of the Clinical Epidemiologists were based upon an assessment of the degree to which the billets could have the quickest and biggest impact. For example, Naval Hospital Pensacola was chosen because of the relatively high volume of services due to the large population of aviation personnel. [Ref. 70, 72] Consideration was also given to the complexity of the facility as well as the support from the MTF's leadership for the program. Table 6.3 illustrates the location and current status of the Clinical Epidemiologist billets. [Ref. 75, 76] Anticipated future locations of Clinical Epidemiology billets include Lead Agent staffs, other MTFs, BUMED, Health Support Offices (HSOs), NEHC/NEPMUs, and Type Command Medical Officers (TYCOM MOs). [Ref. 76]

3. Status of Billets

As illustrated in Table 6.3, only four Clinical Epidemiology positions have been filled, all coming on line during FY 1998 and early FY 1999. Although the appointment letter to NEHC as Program Manager from the CHBUMED states that the assignment of the physicians to the billets will be completed in 1999, the remaining six coded billets are not expected to be filled by then. [Ref. 75] Because Clinical Epidemiology is not a recognized specialty within the Medical Corps, physicians must come from other specialties to fill these billets, which creates a shortage within their respective specialty.

BILLETS CODED AND FILLED AS CLINICAL EPIDEMIOLOGIST

- Bremerton, Washington
- Camp Pendleton, California
- Pensacola, Florida

BILLETS FILLED AS CLINICAL EPIDEMIOLOGIST BUT NOT CODED

- Naval Medical Center Portsmouth, Virginia

BILLETS CODED AS CLINICAL EPIDEMIOLOGIST BUT NOT FILLED

- | | |
|--------------------------------|--------------------------------|
| • Camp Lejeune, North Carolina | • Roosevelt Roads, Puerto Rico |
| • Yokosuka, Japan | • Guam |
| • Okinawa, Japan | • Rota, Spain |

BILLETS NOT CODED OR FILLED BUT IDENTIFIED FOR FUTURE

- | | |
|--|----------------------------|
| • National Naval Medical Center, Bethesda | • Great Lakes, Illinois |
| • Naval Medical Center San Diego, California | • Naples, Italy |
| • Jacksonville, Florida | • Beaufort, South Carolina |

Table 6.3 Status of Clinical Epidemiology Billets

The Director for Health Promotion and Medical Management is acting as the informal specialty advisor for the Clinical Epidemiology billets, but he must get approval from the other specialties to fill these positions. [Ref. 75] Additionally, because this is a relatively new and growing program, it is difficult to recruit people with the required skills who accept and support the need for population-based health care delivery.

The NEHC has had some contact from MTFs, HSOs, and Lead Agents interested in personnel with Clinical Epidemiology skills. Because these commands do not have established Clinical Epidemiology billets, the NEHC is not able to provide the requested personnel. [Ref. 75] If there is strong support within these commands for a Clinical Epidemiologist and the willingness to use a medical officer billet from another specialty to fill this position, the NEHC may consider providing training in order to meet the commands' needs. However, the medical officer would have to possess some of the epidemiology skills required for the CEP, and the command structure would have to support the use of the Clinical Epidemiologist position as it was originally intended.

E. BASELINE REQUIREMENTS FOR CLINICAL EPIDEMIOLOGIST

The prerequisites for the Clinical Epidemiologist billets include general training in the health field, combined with training and experience in epidemiology, statistics, public health, and community health planning. [Ref. 68, 76] A Master of Public Health (MPH), or equivalent, is highly desirable. For the Medical Corps, targeted specialties are Preventive Medicine, Occupational Medicine, Aerospace Medicine, and Primary Care fields with added emphasis in the MPH arena. Nurse Corps, Dental Corps, and Medical

Service Corps officers with equivalent backgrounds in epidemiology and public health may be considered for future billets. However, they are not expected to meet the baseline requirements established for the program due to the lack of expertise in the clinical setting. [Ref. 75]

F. CLINICAL EPIDEMIOLOGIST POSITION DESCRIPTION

The mission of the Clinical Epidemiologist is to assist the Commanding Officer and the medical staff in applying population-based information to clinical health care delivery. [Ref. 77] The Clinical Epidemiologist should provide advice and assistance in population-based medicine, data-driven decisions, outcome measures, utilization management, epidemiological principles and business practices, integration of clinical practice with population-based planning, and definition of management questions and priorities. [Ref. 68, 77] The Clinical Epidemiologist is also expected to provide support to both clinical practice and business operations including: Executive Steering Committee (ESC) planning, priority setting, and measurement; performance improvement topics; medical staff areas of interests; various committees, to include credentialing , infection control, medical records, pharmaceutical and therapeutics, etc.; risk management trends; immunization compliance; and injury reduction.

In order to accomplish these tasks, the Clinical Epidemiologist will use biostatistical analysis; quantitative decision analysis; epidemiology; outcomes study design, implementation, and analysis; and DOD and proprietary computer-based analysis tools. [Ref. 77] Table 6.4 is a complete list of the suggested functions of the Clinical

Epidemiologist as defined in a position description developed by the CHBUMED. [Ref. 77]

G. CLINICAL EPIDEMIOLOGY TRAINING

The pilot Clinical Epidemiology Training Course (CETC) was held in July 1998 at the NEHC. The purpose of the eight-day course was to prepare Clinical Epidemiologists to assume their new positions. [Ref. 77] The course was designed for physicians with preventive medicine backgrounds who wanted to expand their professional influence to broader planning and functions within Navy Medicine. [Ref. 68] The course focused on those physicians with pending or current assignments to Clinical Epidemiology billets. Since only four Clinical Epidemiologist billets had been filled, the NEHC allowed and provided funding for six additional physicians interested in the CEP. A roster of the attendees is included as Appendix A.

The terminal objective of the course, which was defined by BUMED, was to help develop an effective population-based approach to health delivery in order to serve as advisors and consultants to senior management, medical staffs, and others as the MHS integrates clinical practice with population-based planning. [Ref. 77] The enabling objective, as defined by the NEHC, was to provide participants with the skills to define the population served; discover determinants of diseases for the population; and focus on those actions that improve the health of the defined population. Additionally, the course reviewed epidemiology and biostatistics skills; provided an understanding of a systems approach to health, capitation financing, and the TRICARE model; developed skills in

1. Assist the medical staff in collecting, analyzing, and using clinically relevant data.
2. Assist the medical staff in developing and implementing evidence-based clinical practice guidelines.
3. Decrease clinical practice variation through development of utilization management, case management, and disease management strategies.
4. Serve as an advocate throughout the command for population-based analysis.
5. Use quantitative analysis tools to provide management decision support and to help define management priorities.
6. Develop tools for measuring and managing the delivery of health services.
7. Assist with cost-benefit and cost-effectiveness analyses.
8. Assist in measuring outcomes, evaluating processes, and analyzing performance of clinical health care delivery.
9. Advise and assist in the systematic collection and analysis of data.

Table 6.4 Clinical Epidemiologist Functions

data collection, analysis, and evaluation in support of managing the delivery of health services; and constructed a consistent, formalized approach toward spreading population-based medicine across Navy Medicine. [Ref. 68]

The topics covered by the course were population-based medicine; systems thinking; Managed Care/TRICARE, financial management; quality management; data analysis; information systems; and strategy and planning. The course outline, including topics, instructors, and objectives, is included as Appendix B. The content of the course is expected to change over time as the personnel in the Clinical Epidemiology billets identify additional training requirements that may be useful in fulfilling their anticipated role. [Ref. 68, 75]

Additional CETC sessions will be conducted on an as needed basis. As of 1998, NEHC has funding to conduct courses annually. As the need for the training increases, the CETC will likely become a formal course provided by the Naval Postgraduate School (NPS) or Naval School of Health Sciences (NSHS). [Ref. 75]

H. FUNDING FOR THE CLINICAL EPIDEMIOLOGY PROGRAM

In FY 1997, with the anticipation of being assigned the program responsibilities for the CEP, the NEHC funded \$56,600 for the CEP. Organizationally, CEP is part of the Health Promotion and Medical Management Directorate at the NEHC. [Ref. 54] In FY 1998, the NEHC received \$86,300 for administration of the CEP. The funds for the CEP have been used for general administration and execution of the program, including travel,

training, equipment, and supplies. [Ref. 54, 68, 76] Funding does not appear to be an issue in the execution of this program at this time. [Ref. 75]

The NEHC provides standardized hardware and software to each Clinical Epidemiologist in order to facilitate a consistent, and system-wide implementation of the CEP function. [Ref. 78] The initial computer requirements are represented in Table 6.5. Because the Clinical Epidemiologist function is heavily data driven, these requirements are expected to change and to be modified over time. [Ref. 75]

I. SUMMARY OF CHAPTER VI

Epidemiology has traditionally been focused on communicable or epidemic diseases within a population. More recently, because of its scientific-based approach to promote, protect, and restore health in a population, epidemiology has been recognized as a mechanism for health care providers to study health problems in order to develop new strategies of health care delivery, especially in a managed care environment. The private sector, particularly the preventive medicine community, has recognized the need for specialists with the skills and competencies necessary to manage and deliver population-based health care, which is rooted in epidemiology and biostatistics. The ABPM has termed this preventive medicine subspecialty Managerial Medicine.

In 1997, Navy Medicine established the baseline requirements for 50 Physician Clinical Epidemiologists billets at MTFs. The baseline requirements are very similar to the ABPM's Managerial Medicine subspecialty and recognize the need for clinicians to be able to manage population data. Before the establishment of the CEP, Navy Medicine

HARDWARE REQUIREMENTS

Toshiba Tecra 740 CDT Notebook

- CD ROM Multi-Media
- Video Phone
- Fast Processor, 3GB Hard Drive, 48 M RAM
- Internal Fax/Modem/Comms/Card Slots
- Microphone, Ear Phone, Speakers
- AC, Battery, Carrying Case, Lock
- Port Replicator, Extension Screen, Mouse and Keyboard

SOFTWARE REQUIREMENTS

- Windows 95 with Bookshelf
- MS OfficeSuite Professional-- Word, Excel, Access, PowerPoint
- Email Package
- pcAnywhere
- ProComm Plus
- Xferpro
- Netscape Navigator
- EpillInfo
- JCAHO Software
- STAT!Ref CD ROM
- Managed Care Modeling Software
- SPSS
- Stata for (NQMP)
- HEAR Data System

Table 6.5 Clinical Epidemiologist Computer Requirements [Ref. 76]

had not had the tools to develop, interpret, and manage data-based outcomes analysis and data-based clinical practice guidelines.

By the end of FY 1997, less than one year after the CEP requirements were established, nine billets had been identified and converted to Clinical Epidemiologist in MTFs throughout Navy Medicine. Additionally, the initial 50 billet requirement has been reduced to 16 in recognition of competing initiatives. As of 1998, four billets have been staffed, and the remaining billets are not expected to be filled until after FY 1999.

In 1998, the NEHC was designated and received funding as the Program Manager for CEP primarily due to their population-based focus of health care delivery. As Program Manager, the NEHC provides training and supplies, including computer equipment, to the Clinical Epidemiologists. The NEHC also screens physicians for the CEP.

Although this is a relatively new program and total acceptance and support from within Navy Medicine does not yet exist, many commands, e.g., MTFs, HSOs, and Lead Agents, have contacted the NEHC inquiring about how they can get a Clinical Epidemiologist at their facility. Clinical Epidemiologists have the capability to assist MTFs in establishing a baseline of the population's health status; to design and provide health services based upon the populations health risks, wants, and needs; to develop and evaluate outcome measures; and to develop evidence-based practices. The CEP has applications at all levels of health care, from health promotion to acute, restorative care. It has the potential to assist MTFs in evaluating the efficacy of the full spectrum of health

care delivery which may in turn lead to more cost-effective decisions in a managed care environment.

VII. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter briefly summarizes the previous chapters and presents conclusions based on that information. Recommendations for further study are also presented.

A. SUMMARY

This thesis examined the resource and programmatic role that NEHC is expected to play in implementing health promotion programs, and particularly the Clinical Epidemiology Program (CEP) in Navy Medicine. To answer this question, the following subsidiary questions were addressed:

- What is health promotion, in general and in the context of Navy Medicine?
- What are the benefits of health promotion programs?
- How did health promotion evolve?
- Is there a relationship between health promotion, prevention, and wellness?
- How has the focus on health promotion changed within Navy Medicine?
- What responsibilities does NEHC have to Navy Medicine in terms of health promotion programs?
- How do health promotion programs fit into NEHC's overall mission and what interrelationship exists among the programs at NEHC?
- What incentives and responsibilities do Commanding Officers at the MTF level have to endorse and fund health promotion programs?
- How does clinical epidemiology contribute to health promotion and NEHC's mission?

- What role does clinical epidemiology play in managed care?
- What is the purpose and objective of the Navy's CEP?
- What justification exists to support this program?
- What is the significance of the billet reallocation and funding for the CEP?
- What is the structure of the NEHC's CEP course?

To answer these questions, Chapter II examined the evolution of health promotion programs within the private sector health care environment and defined health promotion and related components. A health promotion model was presented, as well as the benefits of health promotion programs from a private sector perspective.

Chapter III provided an overview of the components of health promotion programs as defined by the DOD, the US Navy, and Navy Medicine. It also demonstrated the extent to which health promotion principles are involved in the accomplishment of missions and objectives in the DOD through a discussion of the MHS, Navy Medical Strategic Plan, medical readiness mission requirements, and compliance with national objectives.

Chapter IV provided an overview of the history and program responsibilities of the CHBUMED for health promotion. It also documented the evolution of the health promotion mission of the NEHC.

Chapter V discussed funding for health promotion within the ASD(HA), military services, and the NEHC. It also provided an analysis of Navy Medicine funding for

health promotion programs and discussed the tools used to measure the efficacy of the programs.

Chapter VI discussed epidemiological concepts and the relationship of health promotion to Navy Medicine's CEP. It also provided an overview of NEHC's responsibilities for the CEP, the Clinical Epidemiology billets, baseline requirements for the program, the Clinical Epidemiology position description, CETC, and funding for the program.

B. CONCLUSIONS

Although the concept of health promotion was first introduced in the 1970's as part of a national effort focusing on health promotion and disease prevention, it is still a relatively ambiguous term. Often used interchangeably with the term wellness, health promotion is commonly applied to any attempt to promote positive health within a population. As a result, health promotion programs vary in content within the private sector and MHS and may include combinations of health education, prevention, health protections, and specific interventions, e.g., antismoking campaigns.

In March 1986, DOD established a health promotion policy as part of the national effort to improve health. The DOD policy focused primarily on specific intervention programs, including smoking prevention and cessation, physical fitness, nutrition, stress management, alcohol and drug abuse prevention, and early detection of hypertension. The policy required each military service to establish a health promotion program and to integrate the respective programs with medical and personnel departments.

DOD did not provide additional funding for health promotion, nor did it take comprehensive measures to insure compliance. Although all of the components of the DOD health promotion program were being performed by Navy Medicine to some degree, DON and Navy Medicine did not establish formal programs until 1992.

In February 1992, DON released its version of the DOD health promotion policy. The DON policy, like the DOD policy, was geared to specific intervention programs and did not provide additional funding. It also required all DON components to establish and maintain effective health promotion programs.

Tasked with the responsibility for program administration and integration for DON, as well as assignment of a Health Promotion Officer at each MTF, Navy Medicine's policy, established in January 1992, is more comprehensive than either the DOD or DON policy. It is similar to the private sector model of health promotion and includes traditional health promotion, health protection, preventive services and system improvements. However, due in part to the absence of additional funds or personnel for execution of the health promotion program, MTF support for the program was minimal.

With the implementation of TRICARE in 1993, as well as resource limitations and demands to satisfy medical readiness requirements, the MHS was forced to begin a paradigmatic shift from individual patient, curative care to a population-based health care delivery approach. By 1994, health promotion, prevention, and wellness concepts had become the focal point for several planning efforts within the MHS, including MHS 2020, the MHS Strategic Plan, the Medical Readiness Strategic Plan, and the Navy Medical Department Strategic Plan. As of 1998, these concepts are still a vital

component of these policy documents and have been incorporated into Joint Medical Readiness policy as well, i.e., Force Health Protection and Joint Medical Surveillance.

While policy documents state the importance and relevance of health promotion concepts to the MHS, implementation of the program remains problematic. It was not until FY 1994 that Navy Medicine began funding health promotion at MTFs. Although funding has steadily increased each year, as of FY 1998, health promotion still consumes less than one percent of the total Navy Medicine funding. Second, within Navy Medicine, program implementation preceded the development of a means of measuring its efficacy. Without evidence-based data to support the benefits of health promotion, such as enhancing the health of the population and cost savings and cost avoidance, it is difficult to justify spending even limited resources. A third and related problem is that health promotion has been implemented as a standardized program rather than tailoring it to a specific population, e.g., the treatment facility beneficiary population. A tailored approach would require a reliable benchmark of the health status of the selected population. Absent such data, and a decision regarding the target population, a standardized approach was implemented. Finally, because ASD(HA) does not budget for health promotion, the total cost of the program cannot be identified. Thus, it is difficult to evaluate the program in terms of cost savings and cost avoidance.

Faced with these issues, NEHC, the Health Promotion Program Manager for Navy Medicine, has a challenging role in the continued implementation and support of health promotion. However, NEHC's population-based approach to health care delivery, grounded in public health principles, makes them the ideal manager for this program. As

a command, they continually focus on health promotion and prevention as tools to maximize health and readiness.

In 1998, NEHC was assigned as the Program Manager for the CEP, receiving funding for training and administrative support of the Clinical Epidemiologist billets for the program. The CEP was established by the Medical Corps in 1997 in support of Navy Medicine's strategic goal to maximize stewardship of personnel and material assets. The original intent was to identify, billet, train, and assign 50 Physician Clinical Epidemiologist to selected MTFs throughout Navy Medicine in order to assist the MTFs with establishing a baseline for the population's health status; designing and implementing health services based upon the population's health risks, wants, and needs; developing and evaluating outcome measures; and developing evidence based practices.

By the end of FY 1997, nine billets had been identified and converted to Clinical Epidemiologist at selected Navy Medicine MTF's. Additionally, the initial 50-billet requirement had been reduced to 16 in recognition of competing initiatives. As of 1998, four billets have been staffed; the remaining billets are not expected to be filled until after FY 1999. Because the CEP is not a recognized specialty within the Medical Corps, physicians must come from other specialties to fill these billets, creating a shortage within their respective specialty. Additionally, because this is a relatively new and growing program, it is difficult to recruit people with the required skills who accept and support the need for population-based health care delivery.

Several commands throughout Navy Medicine, including MTFs HSOs, and Lead Agents, have contacted NEHC with requests for a Clinical Epidemiologist at their

facility. They are beginning to recognize the significance and relevance of a Clinical Epidemiologist in managing the health of their beneficiary population. However, because the Clinical Epidemiologist billets are limited, NEHC is unable to meet these requests. If these commands are willing to use a medical officer billet from another specialty to fill this position, NEHC may consider providing training. The commands would have to meet the baseline requirements for the program, including professional knowledge and a strong command support structure.

The CEP is applicable to all levels of care and not just health promotion. It has the potential to evaluate the efficacy of health care delivery, which in turn may lead to more cost-effective decisions in a managed care environment. While NEHC is firmly committed to the program, they do not have the authority to fully implement the CEP throughout Navy Medicine in terms of converting and staffing billets and enforcing the program at the MTF level. If the CEP can assist MTFs in managing and enhancing the health of their populations in the most cost effective manner, this program should not be limited to selected MTFs. A minimal requirement for a Clinical Epidemiologist at every MTF would benefit Navy Medicine as it transitions from traditional curative care to wellness.

C. RECOMMENDATIONS FOR FURTHER RESEARCH

The focus of this analysis was to document the evolution and impact of health promotion programs within the DON with emphasis on the role of NEHC and the CEP. Additional areas of health promotion warrant further research, such as:

- To what extent have DOD and/or DON wellness centers contributed to the enhancement of population health and how cost effective are these centers?
- How has the line community funded and implemented health promotion programs?
- How effective has the CEP been in implementing a population-based focus to health care delivery within MTFs?
- What are the implications of converting Medical Corps billets to the Clinical Epidemiologist specialty? Is it feasible for Navy Medicine to have 50 Clinical Epidemiologist billets and should they be limited to Medical Corps specialties? If the billets are limited, where should they be placed in order to provide the greatest benefit to Navy Medicine? If the remaining Clinical Epidemiologist billets are not filled, what are the potential effects on health promotion and Navy Medicine in general?
- What is the demand for the CEP training within the MHS? Is it cost-effective to provide this training to personnel who will not be filling Clinical Epidemiologist billets? Who should provide the training?

| |
|--|
| Richard F. Kuehne, MD, MPS, MPH CAPT, MC, USN Deputy Director for Medical Management, NEHC email: rfkuehne@ix.netcom.com |
| David Sack, MD, MS CAPT MC USN Director of Health Promotion and Medical Management, NEHC email: sackd@nehc.med.navy.mil |
| Ted J. Robinson, MD, MPH CDR MC USN Clinical Epidemiologist, Naval Hospital Camp Pendleton email: daddy_of2@hotmail.com |
| Mark C. Olesen, MD, MPH CDR MC USN Head, Occupational Medicine Branch, BUMED (MED-024C) email: MCOlesen@us.med.navy.mil |
| Benjamin S. Mitchell CAPT MC USN Physician Consultant, HSO Norfolk email: bsmitchell@aol.com |
| Richard Stoermann, DO, MS CDR MC USN Clinical Epidemiologist, Naval Hospital Pensacola email: occdoc@usa.net |
| Henry G. Potter, MD, MPH CDR MC USN Clinical Epidemiologist, Naval Hospital Bremerton email: epidoc@prodigy.net |
| John M. Montgomery, MD, MPH LCDR MC USNR Family Physician, Medical Epidemiologist, Naval Ambulatory Care Center email: jmmontgomery@pol.net |
| John M. Chandler, MD CDR(SEL) MC USN Navy Fellow, JCAHO email: jmcmdad@erols.com |
| Robert L. Brawley, MD, MPH CAPT MC USN Clinical Epidemiologist, Naval Medical Center Portsmouth email: epidox@aol.com |

APPENDIX B.
CLINICAL EPIDEMIOLOGIST TRAINING COURSE OUTLINE

| TOPIC | INSTRUCTOR | OBJECTIVES At the end of this session, learners will: |
|--|--|--|
| Clinical Epidemiology: Challenges & Opportunities | Col Michael D. Parkinson, USAF, MC Director, Air Force Medical Operations Agency | <ul style="list-style-type: none"> a. Understand new applications of epidemiology skills to population health management, managed care, TRICARE, and readiness. b. Know about American College of Preventive Medicine (ACPM) related initiatives. c. Know about MHS initiatives to support population health management. |
| Review of Epidemiology and Biostatistics | Robert Morrow, MD, MPH Epidemiologist, NEHC | <ul style="list-style-type: none"> a. Understand epidemiology and biostatistics terms. b. Understand epidemiology and biostatistics concepts. |
| TRICARE Overview | CAPT G. Harmeyer, NC, USN Director, TRICARE Mid-Atlantic Region (TMAR2) | <ul style="list-style-type: none"> a. Understand the purpose and structure of TRICARE. b. Know the three TRICARE enrollment options. c. Understand the role of the Managed Care Support contractor. |
| Introduction to Current and Future Medical Information Systems for Planning and Evaluation | LtCol Gregg Meyer, USAF, MC Department of Preventive Medicine & Biometrics, USUHS (via Internet-based instruction) | <ul style="list-style-type: none"> a. Know MHS information system data sources. b. Understand MHS approach to information systems development. c. Understand the migration to the Corporate Executive Information System (CEIS). |
| Evidence-Based Medicine: What Have We Learned? | David Eddy, MD, PhD (via audio lecture) | <ul style="list-style-type: none"> a. Understand the basic concept and challenges of Evidence-Based Medicine. |
| BUMED Perspective on Clinical Practice Issues | CDR Gerry Cox, MC, USN Director, Clinical Management & Plans Division (MED-32) CDR Greg Haugen, MSC, USN (MED-32) | <ul style="list-style-type: none"> a. Understand structure, mission, and goals of MED-32. b. Understand BUMED philosophy on clinical practice issues, including: managed care, clinical practice guidelines, credentialing and accreditation, Utilization Management, Disease Management, Case Management and Evidence-Based Medicine. c. Explore a collaborative role between Clinical Epidemiologists' functions in the field and MED-32 policy guidance from headquarters. |

| TOPIC | INSTRUCTOR | OBJECTIVES At the end of this session, learners will: |
|---|---|---|
| DOD Pharmacoeconomic Center (PEC) Overview | Col Ernie Sutton, MC, USA Medical Consultant, DOD, PEC | a. Understand structure, mission, and goals of the DOD PEC. b. Understand the PEC approach to development, implementation, and validation of DOD-wide Clinical Practice Guidelines. |
| PEC Approach to Clinical Practice Guidelines | | |
| Financial Issues | LCDR David Marotta, MSC, USN Comptroller, TMAR2 | a. Have a general understanding of financial issues within the MHS and TRICARE program. b. Understand the concept of capitation in a managed care environment. c. Know Enrollment Based Capitation. d. Understand Enrollment Based Capitation. |
| Overview of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) | CDR John Chandler, MC, USN Navy Fellow, JCAHO | a. Understand the history, structure, mission, and goals of the JCAHO. b. Understand the JCAHO transition from standards compliance to performance measurement. c. Know JCAHO ORYX requirements. d. Know the MHS procedures for compliance with ORYX requirements. |
| ORYX Performance Measurement | | |
| Introduction to the Corporate Executive Information System (CEIS) | Earl Turner CEIS Regional Trainer, TMAR2 | a. Understand the basic concept and functions of the CEIS. |

| TOPIC | INSTRUCTOR | OBJECTIVES At the end of this session, learners will: |
|---|--|---|
| Surveys, Customer Satisfaction Tools, Report Card | Ann Keeling Data Analyst, TMAR2 | <ul style="list-style-type: none"> a. Know what surveys, customer satisfaction tools, report cards and other similar instruments are being used within the MHS and TRICARE. b. Understand how to gain access to the data in these instruments. c. Explore some of the analysis possibilities and decision support capabilities of these tools and instruments. |
| Equipment Orientation and Issue | NEHC Management Information Department Staff | |
| Ambulatory Data System (ADS) | <p>CDR Paul Rockswold, MC, USN Navy Physician Advisor to ADS</p> <p>Janet Woods Naval Medical Clinic Portsmouth, ADS Trainer</p> | <ul style="list-style-type: none"> a. Understand the ADS: background; what it is; how it relates to other MHS data sources; strengths, limitations; and future role. b. Demonstrate applied ADS skills: basic user skills; define and clarify the population served using ADS; discover determinants of diseases, health status, and resource use in the population; analyze variation in clinical practice; attempt to identify best practice patterns, and potential support staff mix and credentialing questions. |
| Composite Health Care System (CHCS) | Ron Spencer Naval Medical Clinic Portsmouth, CHCS Trainer | <ul style="list-style-type: none"> a. Understand the CHCS: what it is; strengths; limitations; and different module capabilities. b. Demonstrate applied CHCS skills: basic user skills; basic provider skills; and flat file exporting. |
| Corporate Executive Information System (CEIS) | Earl Turner CEIS Regional Trainer, TMAR2 | <ul style="list-style-type: none"> a. Demonstrate applied CEIS skills in Quantum, TrendPath, and TrendStar. |

| TOPIC | INSTRUCTOR | OBJECTIVES At the end of this session, learners will: |
|--|--|--|
| Analyzing Practice Data for Decision Support | Marshall Ruffin, MD, MPH, MBA President, The Informatics Institute, Bethesda, Maryland | <ul style="list-style-type: none"> a. Understand the collection and analysis of health data. b. Demonstrate applied Access skills to the collection and analysis of health data. c. Demonstrate applied Excel skills to the presentation of health data. d. Demonstrate applied skills in importing and exporting health data. |
| Analyzing National Quality Management Program (NQMP) Data with STATA | CAPT Henry Krakauer, USPHS Professor, Department of Preventive Medicine and Biometrics | <ul style="list-style-type: none"> a. Understand the history, purpose and structure of the NQMP. b. Demonstrate applied skills in the analysis of the program data for decision support using STATA. |
| Overview of SPSS/CEIS Link Analyze CEIS Data Using SPSS | Bill Haffey Senior Technical Consultant SPSS | <ul style="list-style-type: none"> a. Understand the MHS relationship between CEIS and SPSS. b. Demonstrate applied SPSS skills in analyzing CEIS data. c. Demonstrate applied SPSS skills in presenting CEIS data. |

| 姓名 | 性别 | 年龄 | 籍贯 | 职业 | 备注 |
|-----|----|----|-----|-----|----|
| 王德胜 | 男 | 45 | 山东 | 教师 | |
| 李秀英 | 女 | 38 | 河北 | 护士 | |
| 张国强 | 男 | 52 | 河南 | 工人 | |
| 刘小红 | 女 | 28 | 江苏 | 医生 | |
| 陈大明 | 男 | 60 | 浙江 | 农民 | |
| 赵小华 | 女 | 35 | 安徽 | 售货员 | |
| 孙伟明 | 男 | 42 | 湖北 | 工程师 | |
| 周丽娟 | 女 | 30 | 湖南 | 会计 | |
| 吴建刚 | 男 | 55 | 江西 | 干部 | |
| 郑晓芳 | 女 | 25 | 四川 | 学生 | |
| 冯志强 | 男 | 48 | 广东 | 经理 | |
| 马静雯 | 女 | 33 | 广西 | 作家 | |
| 徐文博 | 男 | 58 | 福建 | 教授 | |
| 黄雅婷 | 女 | 22 | 贵州 | 歌手 | |
| 梁子健 | 男 | 40 | 云南 | 律师 | |
| 苏美玲 | 女 | 36 | 陕西 | 画家 | |
| 郭浩然 | 男 | 50 | 山西 | 研究员 | |
| 唐小悦 | 女 | 27 | 甘肃 | 舞蹈家 | |
| 罗伟达 | 男 | 43 | 宁夏 | 企业家 | |
| 曹丽霞 | 女 | 31 | 青海 | 记者 | |
| 彭志远 | 男 | 53 | 新疆 | 科学家 | |
| 周敏华 | 女 | 29 | 内蒙古 | 模特 | |
| 吴国强 | 男 | 47 | 黑龙江 | 建筑师 | |
| 郑晓燕 | 女 | 34 | 吉林 | 主持人 | |
| 冯志强 | 男 | 56 | 辽宁 | 教授 | |
| 马静雯 | 女 | 23 | 山东 | 学生 | |
| 徐文博 | 男 | 59 | 河北 | 工人 | |
| 黄雅婷 | 女 | 24 | 河南 | 歌手 | |
| 梁子健 | 男 | 41 | 江苏 | 律师 | |
| 苏美玲 | 女 | 37 | 浙江 | 画家 | |
| 郭浩然 | 男 | 51 | 安徽 | 研究员 | |
| 唐小悦 | 女 | 26 | 湖北 | 舞蹈家 | |
| 罗伟达 | 男 | 44 | 湖南 | 企业家 | |
| 曹丽霞 | 女 | 32 | 江西 | 记者 | |
| 彭志远 | 男 | 54 | 四川 | 科学家 | |
| 周敏华 | 女 | 30 | 广东 | 模特 | |
| 吴国强 | 男 | 46 | 广西 | 建筑师 | |
| 郑晓燕 | 女 | 35 | 福建 | 主持人 | |
| 冯志强 | 男 | 57 | 贵州 | 教授 | |
| 马静雯 | 女 | 24 | 云南 | 学生 | |
| 徐文博 | 男 | 60 | 陕西 | 工人 | |
| 黄雅婷 | 女 | 25 | 山西 | 歌手 | |
| 梁子健 | 男 | 42 | 甘肃 | 律师 | |
| 苏美玲 | 女 | 38 | 宁夏 | 画家 | |
| 郭浩然 | 男 | 52 | 青海 | 研究员 | |
| 唐小悦 | 女 | 27 | 新疆 | 舞蹈家 | |
| 罗伟达 | 男 | 45 | 内蒙古 | 企业家 | |
| 曹丽霞 | 女 | 33 | 黑龙江 | 记者 | |
| 彭志远 | 男 | 55 | 吉林 | 科学家 | |
| 周敏华 | 女 | 31 | 辽宁 | 模特 | |
| 吴国强 | 男 | 48 | 山东 | 建筑师 | |
| 郑晓燕 | 女 | 36 | 河北 | 主持人 | |
| 冯志强 | 男 | 58 | 河南 | 教授 | |
| 马静雯 | 女 | 25 | 江苏 | 学生 | |
| 徐文博 | 男 | 61 | 浙江 | 工人 | |
| 黄雅婷 | 女 | 26 | 安徽 | 歌手 | |
| 梁子健 | 男 | 43 | 湖北 | 律师 | |
| 苏美玲 | 女 | 39 | 湖南 | 画家 | |
| 郭浩然 | 男 | 53 | 江西 | 研究员 | |
| 唐小悦 | 女 | 28 | 四川 | 舞蹈家 | |
| 罗伟达 | 男 | 46 | 广东 | 企业家 | |
| 曹丽霞 | 女 | 34 | 广西 | 记者 | |
| 彭志远 | 男 | 56 | 贵州 | 科学家 | |
| 周敏华 | 女 | 32 | 云南 | 模特 | |
| 吴国强 | 男 | 49 | 陕西 | 建筑师 | |
| 郑晓燕 | 女 | 37 | 山西 | 主持人 | |
| 冯志强 | 男 | 59 | 甘肃 | 教授 | |
| 马静雯 | 女 | 26 | 宁夏 | 学生 | |
| 徐文博 | 男 | 62 | 青海 | 工人 | |
| 黄雅婷 | 女 | 27 | 新疆 | 歌手 | |
| 梁子健 | 男 | 44 | 内蒙古 | 律师 | |
| 苏美玲 | 女 | 40 | 黑龙江 | 画家 | |
| 郭浩然 | 男 | 54 | 吉林 | 研究员 | |
| 唐小悦 | 女 | 29 | 辽宁 | 舞蹈家 | |
| 罗伟达 | 男 | 47 | 山东 | 企业家 | |
| 曹丽霞 | 女 | 35 | 河北 | 记者 | |
| 彭志远 | 男 | 57 | 河南 | 科学家 | |
| 周敏华 | 女 | 33 | 江苏 | 模特 | |
| 吴国强 | 男 | 50 | 浙江 | 建筑师 | |
| 郑晓燕 | 女 | 38 | 安徽 | 主持人 | |
| 冯志强 | 男 | 60 | 湖北 | 教授 | |
| 马静雯 | 女 | 27 | 湖南 | 学生 | |
| 徐文博 | 男 | 63 | 江西 | 工人 | |
| 黄雅婷 | 女 | 28 | 四川 | 歌手 | |
| 梁子健 | 男 | 45 | 广东 | 律师 | |
| 苏美玲 | 女 | 41 | 广西 | 画家 | |
| 郭浩然 | 男 | 55 | 贵州 | 研究员 | |
| 唐小悦 | 女 | 30 | 云南 | 舞蹈家 | |
| 罗伟达 | 男 | 48 | 陕西 | 企业家 | |
| 曹丽霞 | 女 | 36 | 山西 | 记者 | |
| 彭志远 | 男 | 58 | 甘肃 | 科学家 | |
| 周敏华 | 女 | 34 | 宁夏 | 模特 | |
| 吴国强 | 男 | 51 | 青海 | 建筑师 | |
| 郑晓燕 | 女 | 39 | 新疆 | 主持人 | |
| 冯志强 | 男 | 61 | 内蒙古 | 教授 | |
| 马静雯 | 女 | 28 | 黑龙江 | 学生 | |
| 徐文博 | 男 | 64 | 吉林 | 工人 | |
| 黄雅婷 | 女 | 29 | 辽宁 | 歌手 | |
| 梁子健 | 男 | 46 | 山东 | 律师 | |
| 苏美玲 | 女 | 42 | 河北 | 画家 | |
| 郭浩然 | 男 | 56 | 河南 | 研究员 | |
| 唐小悦 | 女 | 31 | 江苏 | 舞蹈家 | |
| 罗伟达 | 男 | 49 | 浙江 | 企业家 | |
| 曹丽霞 | 女 | 37 | 安徽 | 记者 | |
| 彭志远 | 男 | 59 | 湖北 | 科学家 | |
| 周敏华 | 女 | 35 | 湖南 | 模特 | |
| 吴国强 | 男 | 52 | 江西 | 建筑师 | |
| 郑晓燕 | 女 | 40 | 四川 | 主持人 | |
| 冯志强 | 男 | 62 | 广东 | 教授 | |
| 马静雯 | 女 | 29 | 广西 | 学生 | |
| 徐文博 | 男 | 65 | 贵州 | 工人 | |
| 黄雅婷 | 女 | 30 | 云南 | 歌手 | |
| 梁子健 | 男 | 47 | 陕西 | 律师 | |
| 苏美玲 | 女 | 43 | 山西 | 画家 | |
| 郭浩然 | 男 | 57 | 甘肃 | 研究员 | |
| 唐小悦 | 女 | 32 | 宁夏 | 舞蹈家 | |
| 罗伟达 | 男 | 50 | 青海 | 企业家 | |
| 曹丽霞 | 女 | 38 | 新疆 | 记者 | |
| 彭志远 | 男 | 60 | 内蒙古 | 科学家 | |
| 周敏华 | 女 | 36 | 黑龙江 | 模特 | |
| 吴国强 | 男 | 53 | 吉林 | 建筑师 | |
| 郑晓燕 | 女 | 41 | 辽宁 | 主持人 | |
| 冯志强 | 男 | 63 | 山东 | 教授 | |
| 马静雯 | 女 | 30 | 河北 | 学生 | |
| 徐文博 | 男 | 66 | 河南 | 工人 | |
| 黄雅婷 | 女 | 31 | 江苏 | 歌手 | |
| 梁子健 | 男 | 48 | 浙江 | 律师 | |
| 苏美玲 | 女 | 44 | 安徽 | 画家 | |
| 郭浩然 | 男 | 58 | 湖北 | 研究员 | |
| 唐小悦 | 女 | 33 | 湖南 | 舞蹈家 | |
| 罗伟达 | 男 | 51 | 江西 | 企业家 | |
| 曹丽霞 | 女 | 39 | 四川 | 记者 | |
| 彭志远 | 男 | 61 | 广东 | 科学家 | |
| 周敏华 | 女 | 37 | 广西 | 模特 | |
| 吴国强 | 男 | 54 | 贵州 | 建筑师 | |
| 郑晓燕 | 女 | 42 | 云南 | 主持人 | |
| 冯志强 | 男 | 64 | 陕西 | 教授 | |
| 马静雯 | 女 | 31 | 山西 | 学生 | |
| 徐文博 | 男 | 67 | 甘肃 | 工人 | |
| 黄雅婷 | 女 | 32 | 宁夏 | 歌手 | |
| 梁子健 | 男 | 49 | 青海 | 律师 | |
| 苏美玲 | 女 | 45 | 新疆 | 画家 | |
| 郭浩然 | 男 | 59 | 内蒙古 | 研究员 | |
| 唐小悦 | 女 | 34 | 黑龙江 | 舞蹈家 | |
| 罗伟达 | 男 | 52 | 吉林 | 企业家 | |
| 曹丽霞 | 女 | 40 | 辽宁 | 记者 | |
| 彭志远 | 男 | 62 | 山东 | 科学家 | |
| 周敏华 | 女 | 38 | 河北 | 模特 | |
| 吴国强 | 男 | 55 | 河南 | 建筑师 | |
| 郑晓燕 | 女 | 43 | 江苏 | 主持人 | |
| 冯志强 | 男 | 65 | 浙江 | 教授 | |
| 马静雯 | 女 | 32 | 安徽 | 学生 | |
| 徐文博 | 男 | 68 | 湖北 | 工人 | |
| 黄雅婷 | 女 | 33 | 湖南 | 歌手 | |
| 梁子健 | 男 | 50 | 江西 | 律师 | |
| 苏美玲 | 女 | 46 | 四川 | 画家 | |
| 郭浩然 | 男 | 60 | 广东 | 研究员 | |
| 唐小悦 | 女 | 35 | 广西 | 舞蹈家 | |
| 罗伟达 | 男 | 53 | 贵州 | 企业家 | |
| 曹丽霞 | 女 | 41 | 云南 | 记者 | |
| 彭志远 | 男 | 63 | 陕西 | 科学家 | |
| 周敏华 | 女 | 39 | 山西 | 模特 | |
| 吴国强 | 男 | 56 | 甘肃 | 建筑师 | |
| 郑晓燕 | 女 | 44 | 宁夏 | 主持人 | |
| 冯志强 | 男 | 66 | 青海 | 教授 | |
| 马静雯 | 女 | 33 | 新疆 | 学生 | |
| 徐文博 | 男 | 69 | 内蒙古 | 工人 | |
| 黄雅婷 | 女 | 34 | 黑龙江 | 歌手 | |
| 梁子健 | 男 | 51 | 吉林 | 律师 | |
| 苏美玲 | 女 | 47 | 辽宁 | 画家 | |
| 郭浩然 | 男 | 61 | 山东 | 研究员 | |
| 唐小悦 | 女 | 36 | 河北 | 舞蹈家 | |
| 罗伟达 | 男 | 54 | 河南 | 企业家 | |
| 曹丽霞 | 女 | 42 | 江苏 | 记者 | |
| 彭志远 | 男 | 64 | 浙江 | 科学家 | |
| 周敏华 | 女 | 40 | 安徽 | 模特 | |
| 吴国强 | 男 | 57 | 湖北 | 建筑师 | |
| 郑晓燕 | 女 | 45 | 湖南 | 主持人 | |
| 冯志强 | 男 | 67 | 江西 | 教授 | |
| 马静雯 | 女 | 34 | 四川 | 学生 | |
| 徐文博 | 男 | 70 | 广东 | 工人 | |
| 黄雅婷 | 女 | 35 | 广西 | 歌手 | |
| 梁子健 | 男 | 52 | 贵州 | 律师 | |
| 苏美玲 | 女 | 48 | 云南 | 画家 | |
| 郭浩然 | 男 | 62 | 陕西 | 研究员 | |
| 唐小悦 | 女 | 37 | 山西 | 舞蹈家 | |
| 罗伟达 | 男 | 55 | 甘肃 | 企业家 | |
| 曹丽霞 | 女 | 43 | 宁夏 | 记者 | |
| 彭志远 | 男 | 65 | 青海 | 科学家 | |
| 周敏华 | 女 | 41 | 新疆 | 模特 | |
| 吴国强 | 男 | 58 | 内蒙古 | 建筑师 | |
| 郑晓燕 | 女 | 46 | 黑龙江 | 主持人 | |
| 冯志强 | 男 | 68 | 吉林 | 教授 | |
| 马静雯 | 女 | 35 | 辽宁 | 学生 | |
| 徐文博 | 男 | 71 | 山东 | 工人 | |
| 黄雅婷 | 女 | 36 | 河北 | 歌手 | |
| 梁子健 | 男 | 53 | 河南 | 律师 | |
| 苏美玲 | 女 | 49 | 江苏 | 画家 | |
| 郭浩然 | 男 | 63 | 浙江 | 研究员 | |
| 唐小悦 | 女 | 38 | 安徽 | 舞蹈家 | |
| 罗伟达 | 男 | 56 | 湖北 | 企业家 | |
| 曹丽霞 | 女 | 44 | 湖南 | 记者 | |
| 彭志远 | 男 | 66 | 江西 | 科学家 | |
| 周敏华 | 女 | 42 | 四川 | 模特 | |
| 吴国强 | 男 | 59 | 广东 | 建筑师 | |
| 郑晓燕 | 女 | 47 | 广西 | 主持人 | |
| 冯志强 | 男 | 69 | 贵州 | 教授 | |
| 马静雯 | 女 | 36 | 云南 | 学生 | |
| 徐文博 | 男 | 72 | 陕西 | 工人 | |
| 黄雅婷 | 女 | 37 | 山西 | 歌手 | |
| 梁子健 | 男 | 54 | 甘肃 | 律师 | |
| 苏美玲 | 女 | 50 | 宁夏 | 画家 | |
| 郭浩然 | 男 | 64 | 青海 | 研究员 | |
| 唐小悦 | 女 | 39 | 新疆 | 舞蹈家 | |
| 罗伟达 | 男 | 57 | 内蒙古 | 企业家 | |
| 曹丽霞 | 女 | 45 | 黑龙江 | 记者 | |
| 彭志远 | 男 | 67 | 吉林 | 科学家 | |
| 周敏华 | 女 | 43 | 辽宁 | 模特 | |
| 吴国强 | 男 | 60 | 山东 | 建筑师 | |
| 郑晓燕 | 女 | 48 | 河北 | 主持人 | |
| 冯志强 | 男 | 70 | 河南 | 教授 | |
| 马静雯 | 女 | 37 | 江苏 | 学生 | |
| 徐文博 | 男 | 73 | 浙江 | 工人 | |
| 黄雅婷 | 女 | 38 | 安徽 | 歌手 | |
| 梁子健 | 男 | 55 | 湖北 | 律师 | |
| 苏美玲 | 女 | 51 | 湖南 | 画家 | |
| 郭浩然 | 男 | 65 | 江西 | 研究员 | |
| 唐小悦 | 女 | 40 | 四川 | 舞蹈家 | |
| 罗伟达 | 男 | 58 | 广东 | 企业家 | |
| 曹丽霞 | 女 | 46 | 广西 | 记者 | |
| 彭志远 | 男 | 68 | 贵州 | 科学家 | |
| 周敏华 | 女 | 44 | 云南 | 模特 | |
| 吴国强 | 男 | 61 | 陕西 | 建筑师 | |
| 郑晓燕 | 女 | 49 | 山西 | 主持人 | |
| 冯志强 | 男 | 71 | 甘肃 | 教授 | |
| 马静雯 | 女 | 38 | 宁夏 | 学生 | |
| 徐文博 | 男 | 74 | 青海 | 工人 | |
| 黄雅婷 | 女 | 39 | 新疆 | 歌手 | |
| 梁子健 | 男 | 56 | 内蒙古 | 律师 | |
| 苏美玲 | 女 | 52 | 黑龙江 | 画家 | |
| 郭浩然 | 男 | 66 | 吉林 | 研究员 | |
| 唐小悦 | 女 | 41 | 辽宁 | 舞蹈家 | |
| 罗伟达 | 男 | 59 | 山东 | 企业家 | |
| 曹丽霞 | 女 | 47 | 河北 | 记者 | |
| 彭志远 | 男 | 69 | 河南 | 科学家 | |
| 周敏华 | 女 | 45 | 江苏 | 模特 | |
| 吴国强 | 男 | 62 | 浙江 | 建筑师 | |
| 郑晓燕 | 女 | 50 | 安徽 | 主持人 | |
| 冯志强 | 男 | 72 | 湖北 | 教授 | |
| 马静雯 | 女 | 39 | 湖南 | 学生 | |
| 徐文博 | 男 | 75 | 江西 | 工人 | |
| 黄雅婷 | 女 | 40 | 四川 | 歌手 | |
| 梁子健 | 男 | 57 | 广东 | 律师 | |
| 苏美玲 | 女 | 53 | 广西 | 画家 | |
| 郭浩然 | 男 | 67 | 贵州 | 研究员 | |
| 唐小悦 | 女 | 42 | 云南 | 舞蹈家 | |
| 罗伟达 | 男 | 60 | 陕西 | 企业家 | |
| 曹丽霞 | 女 | 48 | 山西 | 记者 | |
| 彭志远 | 男 | 70 | 甘肃 | 科学家 | |
| 周敏华 | 女 | 46 | 宁夏 | 模特 | |
| 吴国强 | 男 | 63 | 青海 | 建筑师 | |
| 郑晓燕 | 女 | 51 | 新疆 | 主持人 | |
| 冯志强 | 男 | 73 | 内蒙古 | 教授 | |
| 马静雯 | 女 | 40 | 黑龙江 | 学生 | |
| 徐文博 | 男 | 76 | 吉林 | 工人 | |
| 黄雅婷 | 女 | 41 | 辽宁 | 歌手 | |
| 梁子健 | 男 | 58 | 山东 | 律师 | |
| 苏美玲 | 女 | 54 | 河北 | 画家 | |
| 郭浩然 | 男 | 68 | 河南 | 研究员 | |
| 唐小悦 | 女 | 43 | 江苏 | 舞蹈家 | |
| 罗伟达 | 男 | 61 | 浙江 | 企业家 | |
| 曹丽霞 | 女 | 49 | 安徽 | 记者 | |
| 彭志远 | 男 | 71 | 湖北 | 科学家 | |
| 周敏华 | 女 | 47 | 湖南 | 模特 | |
| 吴国强 | 男 | 64 | 江西 | 建筑师 | |
| 郑晓燕 | 女 | 52 | 四川 | 主持人 | |
| 冯志强 | 男 | 74 | 广东 | 教授 | |
| 马静雯 | 女 | 41 | 广西 | 学生 | |
| 徐文博 | 男 | 77 | 贵州 | 工人 | |
| 黄雅婷 | 女 | 42 | 云南 | 歌手 | |
| 梁子健 | 男 | 59 | 陕西 | 律师 | |
| 苏美玲 | 女 | 55 | 山西 | 画家 | |
| 郭浩然 | 男 | 69 | 甘肃 | 研究员 | |
| 唐小悦 | 女 | 44 | 宁夏 | 舞蹈家 | |
| 罗伟达 | 男 | 62 | 青海 | 企业家 | |
| 曹丽霞 | 女 | 50 | 新疆 | 记者 | |
| 彭志远 | 男 | 72 | 内蒙古 | 科学家 | |
| 周敏华 | 女 | 48 | 黑龙江 | | |

LIST OF REFERENCES

1. Singer, Neil, "Reforming the Military Health Care System," CBO Testimony, 19 April 1994.
2. Department of Defense Directive 1010.10, Health Promotion Policy, December 1986.
3. Kaslow, F., *The Military Family in Peace and War*, New York: Springer, 1993.
4. Kongstvedt, Peter R., *The Managed Health Care Handbook*, Gaithersburg, Maryland: Aspen Publishers, Inc., 1996.
5. Assistant Secretary of Defense, Health Affairs, "Updated TRICARE Policy Guidelines," 22 February 1994.
6. Navy Environmental Health Center Web Site, <http://www-nehc.med.navy.mil>.
7. Military Health System 2020 Vision Web site, <http://keydet.sra.com/hs2020/homepage/hs2020.htm>.
8. Health Affairs Web Site, <http://www.ha.osd.mil>.
9. Duncan, W. Jack, Peter M. Ginter, and Linda E. Swayne, *Strategic Management of Health Care Organizations*, Cambridge, Massachusetts: Blackwell Publishers, Inc., 1995.
10. Reagan, Patricia A. and Jodi Brookins-Fisher, *Community Health in the 21st Century*, Needham Heights, Massachusetts: Allyn and Bacon, 1997.
11. Department of Health and Human Services, Healthy People 2000 Website, <http://odphp.osophs.dhhs.gov/pubs/hp2000>.
12. U. S. Department of Health and Human Services, Public Health Services, *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*, Full Report. DHHS Pub. No. 91-5212. Washington, DC: USGPO, 1991.
13. Downie, R.S., Carol Tannahill and Andrew Tannahill, *Health Promotion Models and Values*, New York: Oxford University Press, 1996.
14. Medicine Network Website, <http://www.medicinenet.com>.
15. Butler, J.T., *Principles of Health Promotion and Education*, Englewood, Colorado: Morton, 1994.

16. Martin, Edward D., Acting Assistant Secretary of Defense for Health Affairs, Statement before the Subcommittee on Military Personnel, House National Security Committee, 26 February 1998.
17. Modeste, Naomi N, *Dictionary of Public Health Promotion and Education, Terms and Concepts*, Thousand Oaks, California: SAGE Publications, Inc., 1996.
18. Russell, Louise B., *Is Prevention Better Than Cure?*, Washington, D.C., The Brookings Institution, 1986.
19. Bunton, R., and G. MacDonald, *Health Promotion: Disciplines and Diversity*, New York: Routledge, Chapman and Hill, 1992.
20. United States General Accounting Office, March 1995, Defense Health Care: Issues and Challenges Confronting Military Medicine, GAO/HEHS-95-104.
21. Bureau of Medicine and Surgery Instruction (BUMEDINST) 6110.13, Naval Medical Department Health Promotion Program, January 6, 1992.
22. Office of Civilian Personnel and Management Instruction (OCPMINST) 12792.4, Employee Health Promotion and Wellness Program, February 14, 1992.
23. US Navy Instruction (OPNAVINST) 6100.2, Health Promotion Program, February 25, 1992.
24. United States Marine Corps Order (MCO) 6200.4A, Health Promotion Program: Semper Fit, April 7, 1997.
25. Commander Naval Surface Force US Atlantic Fleet Instruction (COMNAVSURFLANTINST) 6100.1, Health and Wellness Program, January 6, 1994.
26. Commander Naval Air Force US Atlantic Fleet Instruction (COMNAVAIRLANTINST) 6100.2, Health Promotion Program, December 11, 1995.
27. Commander in Chief US Naval Forces Europe Instruction (CINCUSNAVEURINST) 6100.1, Health Promotion Program, February 5, 1996.
28. Bureau of Medicine and Surgery, Code 32, (BUMED-32), The Role of the Military Health Services System in National Health Reform, March 1993.
29. Military Health System (MHS) Strategic Plan, May 1995.

30. Medical Department of the US Navy Strategic Plan, August 1997.
31. Bureau of Medicine and Surgery Web Site, <http://support1.med.navy.mil/bumed>.
32. Medical Readiness Strategic Plan (MRSP) 1998-2004. Department of Defense Directive 5136.1-P, August 1998.
33. Assistant Secretary of Defense, Health Affairs, Medical Program Guidance, Fiscal Years 2000-2005, April 1, 1998.
34. Navy Warfare Development Command and Marine Corps Combat Development Command, Concept of Naval Force Health Protection for the 21st Century, June 22, 1998.
35. Department of Defense Directive 6490.2, Joint Medical Surveillance, August 30, 1997.
36. Department of Defense Instruction 6490.3, Implementation and Application of Joint Medical Surveillance for Deployments, August 7, 1997.
37. Department of the Navy, Bureau of Medicine and Surgery, Planning Framework for Navy Medicine, Version 1.1, January 31, 1994.
38. Department of the Army, Office of the Surgeon General, Report of the Subcommittee on Health Promotion Program Evaluation, August 17, 1992.
39. Assistant Secretary of Defense, Health Affairs, Health Affairs Policy 9800027, Policy for Put Prevention into Practice (PPIP), March 31, 1998.
40. Defense Link News Release, Defense Department Expanded Health Care Initiatives Announcement at Family Re-Union 7 Conference, June 23, 1998.
41. Navy Environmental Health Center, Health Promotion Starter Kit, n.d.
42. Brawley, Robert, Captain, United States Navy, Medical Corps, Navy Environmental Health Center, Director of Health Promotion and Medical Management. Personal Interview. July 16, 1998.
43. Telephone conversation between Captain Candace Gortney, United States Navy, Nurse Corps, Bureau of Medicine and Surgery, Code 02, Operational Medicine and Fleet Support, Head, Health Promotion, and author, October 21, 1998.
44. Chief, Bureau of Medicine and Surgery, Designation as Program Manager for Health Promotion, December 5, 1994.

45. Chief, Bureau of Medicine and Surgery, Assignment as Project Manager for Physician Clinical Epidemiologists, April 3, 1998.
46. Buck, Richard, Captain, United States Navy, Medical Corps, Navy Environmental Health Center, Commanding Officer. Naval Postgraduate School Lecture, Change Management and the Navy Environmental Health Center. May 6, 1998.
47. Koenig, Harold, Vice Admiral, United States Navy, Medical Corps, Surgeon General of the Navy, Surgeon General's Situation Report, 18-96, September 17, 1996.
48. Navy Environmental Health Center, Command Philosophy, July 29, 1996.
49. FitzSimmons, D.W., and A. W. Whiteside, *Conflict, War, and Public Health*, Research Institute for the Study of Conflict and Terrorism, 1994.
50. Telephone conversation between Commander Debbie McKay, United States Navy, Nurse Corps, Navy Environmental Health Center, Deputy Director, Health Promotion and Medical Management, and author, November 2, 1998.
51. Assistant Secretary of Defense, Health Affairs, Policy for TRICARE Health Enrollment Assessment Review (HEAR) Survey, October 11, 1996.
52. Telephone conversation between Major Julie Hall, United States Air Force, Assistant Secretary of Defense, Health Affairs, Senior Program Analyst, Capitation Financing, and author, October 27, 1998.
53. Assistant Secretary of Defense, Health Affairs, Health Promotion and Prevention Initiative, October 7, 1996.
54. McMullen, J. L., Navy Environmental Health Center, Resource Management Director. Personal Interview. July 13, 1998.
55. Telephone conversation between Vivian Walden, Bureau of Medicine and Surgery, MED 11, Budget Analyst, and author, October 28, 1998.
56. Assistant Secretary of Defense, Health Affairs, Policy on the Appropriate Resourcing for Health and Fitness (H&F) Programs, February 11, 1998.
57. Telephone conversation between Major Jane Stetto, United States Air Force, Nurse Corps, Director, Health Promotion, and author, November 2, 1998.
58. Telephone conversation between Lieutenant Colonel Beth Foley, U.S. Army, Deputy Chief of Staff for Personnel, Health Promotion Policy Officer, and author, November 13, 1998

59. Telephone conversation between Lieutenant Colonel Robert Landry, U.S. Army, Medical Corps, US Army Medical Department Command, and author, November 3, 1998.
60. Wellness Councils of America Web Site, <http://www.wellcoa.com>.
61. Wellness Junction Web Site, <http://www.wellnessjunction.com>.
62. Sommer, Alfred, MD, MHS, "Epidemiology and the Health Care Revolution," *American Epidemiology Professionals*, Volume 8, Number 8, pp. 526-529, November 1997.
63. Scutchfield, F. Douglas, MD, "Medical Directors, Managed Care, and Population Medicine Competencies, Old Wine in New Bottles," *American Journal of Preventive Medicine*, Volume 15, Number 1, 1998.
64. Shortell, Stephen M., Gillies, Robin R., Anderson, David A., Erickson, Karen M., and Mitchell, John B., *Remaking Health Care in America*, San Francisco, California: Jossey-Bass Publishers, 1996.
65. Holland, W. W., *Data Handling in Epidemiology*, New York: Oxford University Press, 1970.
66. Lane, Dorothy S., MD, MPH, and Ross, Virginia, PhD, "Defining Competencies and Performance Indicators for Physicians in Medical Management," *American Journal of Preventive Medicine*, Volume 14, Number 3, 1998.
67. Halbert, R. J., MD, MPH, Bokor, Alexander, MD, MPH, Castrence-Nazareno, Rowena, MD, MPH, Parkinson, Michael D., MD, MPH, and Lewis, Charles, E., MD, ScD, "Competencies for Population-Based Clinical Managers, a Survey of Managed Care Medical Directors," *American Journal of Preventive Medicine*, Volume 15, Number 1, 1998.
68. Kuehne, Richard F., MD, MPA, MPH, Captain, United States Navy, Medical Corps, Deputy Director for Medical Management, Navy Environmental Health Center, Personal Interview, July 13, 1998.
69. Buck, Richard, MD, MPH, Captain, United States Navy, Medical Corps, Commanding Officer, Navy Environmental Health Center, Personal Interview, July 13, 1998.
70. Telephone conversation between Captain R. Hufstader, MD, United States Navy, Medical Corps, former Deputy Director of the Medical Corps, MED-00MC, and author, October 26, 1998.

71. Buck, Richard, MD, "Some Future Directions for Navy Preventive Medicine," *Notes from a Stubby Pencil*, Volume 7, Number 7, August 1994.
72. Buck, Richard, MD, "Current Directions in Preventive Medicine and Opportunities for Navy Preventive Medicine," *Notes from a Stubby Pencil*, Volume 8, Number 4, June-July 1995.
73. Telephone conversation between Captain Ronald Sollock, United States Navy, Medical Corps, Bureau of Medicine and Surgery, MED-OOMC, Manpower Policy and Plans Officer, and author, November 5, 1998.
74. Buck, Richard, MD, "Current Directions in Preventive Medicine and Opportunities for Navy Preventive Medicine," *Medical Corps Update*, Winter 1995.
75. Telephone conversation between Captain David Sack, MD, MS, United States Navy, Medical Corps, Director of Health Promotion and Medical Management, Navy Environmental Health Center, and author, October 21, 1998.
76. Kuehne, Richard F., MD, MPA, MPH, Captain, United States Navy, Medical Corps, "Assignment of Clinical Epidemiologists" lecture, Naval Postgraduate School, May 1998.
77. Clinical Epidemiology Training Course, Navy Environmental Health Center, Norfolk, Virginia, July 13 to July 23, 1998

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center..... 2
8725 John J. Kingman Rd., Suite 0944
Ft. Belvoir, VA 22060-6218
2. Dudley Knox Library.....2
Naval Post Graduate School
411 Dyer Road
Monterey, CA 93943-5101
3. Commanding Officer..... 2
Navy Environmental Health Center
2510 Walmer Avenue
Norfolk, VA 23513-2617
4. Professor Richard Doyle..... 2
Code SM/DY
Naval Postgraduate School
Monterey, CA 93943
5. LT Mary Seymour..... 2
1100 N. Walnut
Hartford City, IN 47348

DUDLEY KNOX LIBRARY



3 2768 00365952 5